TO EVALUATE COMMERCIAL BANKS PERFORMANCE IN MALAYSIA BY USING CAMEL FRAMEWORK: AN ANALYSIS WITH ROA, ROE AND EVA

BY

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Thesis Submitted to
Othman Yeop Abdullah Graduate School of Business,
Universiti Utara Malaysia,
In Partial Fulfillment of the Requirement for the Master of Sciences (Banking)

Pusat Pengajian Ekonomi, Kewangan dan Perbankan
SCHOOL OF ECONOMICS, FINANCE, AND BANKING
Universiti Utara Malaysia

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ABSTRACT

This paper intends to evaluate the commercial banks performance in Malaysia by using CAMEL framework with assessment through conventional accounting measures of Return on Asset (ROA) and Return on Equity (ROE) and Economic Value Added (EVA) as measurements for banking industry performance. It able to provide overview and better understanding on bank's financial performance as well as to identify factors which affect bank performance and hence to improve in risk management to reduce losses to the bank. This study has been conducted by using 16 commercial banks comprises of local and foreign banks for the 5 years period from 2013 to 2017. The findings of this study suggested that CAMEL variables are significant in ROA, ROE and EVA models except for liquidity which is insignificant to ROE. The study concluded that EVA model has better explanation in bank financial performance as compared to ROA and ROE.

Keywords: commercial banks, camel framework, bank performance, roa, roe, eva, malaysia

PENILAIAN PENCAPAIAN BANK PERDAGANGAN DI MALAYSIA DENGAN MENGGUNAKAN RANGKA CAMEL: ROA, ROE DAN EVA ANALISIS

ABSTRAK

Kertas ini menganalisis pencapaian bank perdagangan di Malaysia dengan menggunakan rangka kerja CAMEL dan membuat taksiran melalui konvensional perakaunan pulangan ke atas asset (ROA), pulangan ke atas ekuiti (ROE) dan nilai tambah ekonomi (EVA) sebagai pengukuran pencapaian kepada industri perbankan. Kajian ini dapat memberi gambaran keseluruhan dan pemahaman yang lebih baik terhadap pencapaian kewangan bank. Selain itu, kajian ini juga dapat mengenal pasti faktor-faktor yang mempengaruhi prestasi bank dan seterusnya meningkatkan pengurusan risiko untuk mengurangkan kerugian kepada bank. Kajian ini telah dijalankan dengan menggunakan 16 bank perdagangan terdiri daripada bank tempatan dan asing untuk tempoh 5 tahun dari tahun 2013 hingga 2017. Penemuan kajian ini mencadangkan bahawa pemboleh ubah CAMEL adalah penting dalam model ROA, ROE dan EVA kecuali kecairan yang tidak penting kepada ROE. Kajian ini menyimpulkan bahawa model EVA mempunyai penjelasan yang lebih baik dalam prestasi kewangan bank berbanding dengan ROA dan ROE.

Kata kunci: bank perdagangan, rangka kerja camel, pencapaian bank, roa, roe, eva, malaysia

ACKNOWLEDGEMENT

The process of completing this research study has involved a lot of important peoples. Here, I would like to express my heartfelt gratitude to all those who helped me in one way or another to complete this study.

First and foremost, I would like to appreciate my supervisor, Dr Ahmad Rizal, for his supervision, advice, and guidance from the conception of this research project. The completion of this research study will not be possible and done without his detailed and constructive comments and her unwavering support throughout this work. Besides that, I would like to appreciate again for giving valuable assistance and guideline in running Eviews software.

Furthermore, I also very grateful and would like to thank my family and friends for their loving support, patience, and financial resources during the course of this research study. Last but not least, I would like to thank my course mate for valuable opinions and contributed ideas dealing with this paper. Your support is much appreciated. Thank You.

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LIST OF ABBREVIATIONS

ROA	Return on Asset
ROE	Return on Equity
EVA	Economic Value Added
CA	Capital Adequacy
AQ	Asset Quality
MGMT	Management
EA	Earning
LI	Liquidity
BNM	Bank Negara Malaysia
NOPAT	Net Operating After Tax
WACC	Weighted Average Cost of Capital
OLS	Ordinary Least Square
SRR	Statutory Require Reserve
FRS	Financial Reporting Standards
GMM	Generalized Method of Moments

CHAPTER ONE

INTRODUCTION

1.1 Introduction

The objective of this study is to evaluate the determinants of financial performance of commercial banks in Malaysia by using CAMEL framework with Return on Asset (ROA), Return on Equity (ROE) and Economic Value Added (EVA) are used as measurements for the financial performance.

A sound financial structure of commercial banks can lead to financial stability which in turn create a conducive environment for businesses to undertake their activities and for savers and investors to enter into short-term or long-term contracts. Financial stability refers to an environment where institutions in a financial system are strong and can continue to meet their contractual obligations without interruption or without any external assistance. Market participants can also confidently enter into transactions at prices that do not change substantially over short time period and there is no significant change in market fundamentals (Mishkin, 2007)

However, in a study by Sufian (2009) which examined bank efficiency during Asian financial crisis 1997, poor financial structure of a bank can lead to financial failure which can result in unfavorable ramifications for the economy. This could result in disturbance in money related intermediation, credit crunch or absence of financing for new ventures and utilization exercises, settlement chance in installment frameworks, monetary market separations, far reaching joblessness, social repercussions and in addition debilitated nearby and remote speculator trust in budgetary area.

According to BNM's research report in 2017, in the case of Malaysia's experience during the Asian financial crisis, the GDP declined by 7.5% and frail local fare request in the economy. Subsequently, it pressures on banking system which increase of non-performing loans and causes banks to over-concentration of risk.

Hence, a comprehensive framework is essential to support financial stability through development of financial sector which complements the regulation and supervision of financial institutions. An efficient bank is able to create diverse range of financial services and offer reasonable costs for banking products and services provided.

In short, the efficiency of bank's financial performance plays an important role in the financial sector and impacts the financial stability of the country. The evaluation of bank's performance should be conducted to determine the measurement and to provide more comprehensive view and cohesive approach in risk management.

1.2 Background of Study

Today, banking and the financial services industry are rapidly globalizing and experiencing intense competition in marketplace, not just between banks, but also involving security dealers, insurance companies, and finance companies in Malaysia. These financial heavyweights are all converging toward each other, offering similar services to the public. Banking and the financial-services industry are undergoing a technological revolution as the management of information and the production and distribution of financial services become increasingly electronic.

According to Rose and Hudgins (2008), a bank can be defined in terms of the economic functions it serves and involves the transfer of funds from savers to borrowers (financial

intermediation) and in paying for goods and services. The services offered to customers involved deposits, loans, security trading and underwriting, insurance protection, financial planning, management of pension plans and many others.

On the other hand, the Financial Services Act 2013 defines a bank as a person who carries on banking business of which the business of receiving deposits on current account, deposit account, savings account or other similar account; paying or collecting cheques drawn by or paid in by customers; provision of finance or other related businesses with the approval of the Minister, may prescribe.

Gup et al. (2001) stated that commercial banks are principal source of credit for millions of individuals and families and for many units of government. They are among the leading buyers of bonds and notes government issue to finance public facilities as well as the most important of short-term and long term working capital for businesses. In general, a bank can be defined as any business offering deposits such as savings, fixed deposits accounts and current accounts as well as making loans such as granting credit to businesses and individuals.

The financial system also plays an important role in the financial market. According to Koch et al. (2003), the financial system has provided for efficient flow of funds from savings to investment by bringing savers and borrowers together via financial markets where financial instruments are traded and financial institutions facilitate flows of funds from savers to borrowers. The functions of financial system include savings function, wealth function, liquidity function, credit function, payment function, risk protection function and policy function. Each of the functions has given its own serving purpose to provide stability and functionality of the financial system.

In brief, the savings function provide the public a means to reserve funds; the wealth function provides financial instruments sold in the money and capital markets provide an excellent way to store wealth; the liquidity function gives savers who hold monetary instruments yet need cash; the credit function serves as global financial markets furnish credit to finance consumption and investment spending; the payment function gives a settlement platform for products and services; the risk protection function offer protection against life, health, property and income risks, by sanctioning individuals and institutions to engage in both risk-sharing; the policy function provides a channel for government to stabilize the economy and prevent inflation.

There are few reasons to evaluate the bank and it represented the way of which the resources used by the bank to maximize its shareholder wealth. The term of bank performance likewise demonstrated the bank's present status and the degree of its capacity to accomplish the coveted targets with appropriation of financial indicators (Sufian & Habibullah, 2012).

In a modern economy, bank efficiency is considered a vital segment to ascertain a sound financial system and an efficient economy, thus evaluation and analysis of bank performance are needed to be carefully conducted. Measuring the bank performance can also help in determining the contribution by each bank to economy and business development through various wide range of financial products and services.

It is undeniable that not only bank regulators, bank management bodies and supervising institutions but also bank customers as well as investors are worried about the dependability and supportability of the bank's activities in view of the significant attention and scrutiny of the banks by the public and financial regulators. The increasing economic innovation

and development result in the need to assess banks in a more effective way (Almazari, 2011).

The other reason to evaluate the bank performance is to determine its effectiveness and efficiency as well as the overall financial condition. Furthermore, the evaluation of bank performance also enables in the assessment of different perspectives such as banks' assets quality, earnings performance, liquidity status, capital adequacy, and level of compliance with financial products and services provided to its customers (Almazari, 2011).

In addition to the evaluation of bank performance, it also can help the customers and investors to gather the formal and informal data for analysis and to give proof of the bank's credit activity and money related streams to the bank controllers and government in helping building up the nation.

Overall, in Malaysia, the banking sector consists of local banks and foreign banks. The existence of local banks may have longer establishment, but the private banks are getting increasingly competitive as their operations are expanding. This has not only increased dynamic and competitiveness in the banking industry, but also encouraged greater efficiency in banking services.

1.3 Problem Statement

Commercial banks in Malaysia are highly regulated financial institutions in the financial market. They play various important roles in circulating and channeling the funds from surplus units to deficit units. Evaluation of bank performance can be done by computing the financial ratios.

Raiyani & Joshi (2011) pointed out that the limitation of financial ratio analysis is that it is difficult to generalize across the different business sectors and it also depends on which

dimension investors are looking into. It also fails to provide a clear understanding of the major variables that drive value and easily influenced by the miscellaneous management and does not incorporate time value of money which help investors understand the intricate process of value creation for shareholder.

Another challenge of evaluating the bank performance is to characterize and actualize an unambiguous measure of execution that relates well with investor wealth creation. Traditionally, bank management, analysts and investors have focused on earning per share, return on equity, market capitalization and efficiency ratios in order to assess how well the bank has performed and to create the shareholders' value.

It has been shown that the conventional measurements have some limitations in providing a direct measure or accurately assess the value of shareholders' investment created in a portfolio. The conventional measurements do not properly reflect risk and reinforce behavior such as maximizing earnings and preventing dilution of returns.

As such, EVA model has been developed to quantify the company's value by subtracting the cost of all capital utilized. It filled in as estimation of financial execution which can prompt administration choices that are different from those based on conventional measurements. According to Dennis et al. (1996), EVA is a more accurate measure of performance because it is dollar-based and is positively correlated with wealth maximization. Therefore, the EVA measurement has served to guide decision-making and performance evaluation toward the common goal of shareholder wealth maximization.

With the weakness of conventional measurement on bank performance, the EVA model enables to better capture, improve and expound the bank performance whereas the CAMEL

framework is able to assess the overall bank performance. Hence, the research is conducted by using the variables in the CAMEL framework as the determinants of banks' financial performance proxied by both conventional accounting measures and EVA model. As such, combination of these measurements can provide a better benchmark for banks' financial performance.

1.4 Research Questions

On the basis of aforementioned problem statement, the research attempts to answer the following research questions:

1) Is there any significant relationship between variables in CAMEL framework and ROA of commercial banks in Malaysia?
2) Is there any significant relationship between variables in CAMEL framework and ROE of commercial banks in Malaysia?
3) Is there any significant relationship between variables in CAMEL framework and EVA of commercial banks in Malaysia?

1.5 Research Objectives

Based on the above research questions, the research objectives are as follows:

1) To examine the relationship between variables in CAMEL framework and ROA of commercial banks in Malaysia.
2) To examine the relationship between variables in CAMEL framework and ROE of commercial banks in Malaysia.
3) To examine the relationship between variables in CAMEL framework and EVA of commercial banks in Malaysia.

1.6 Significance of the Study

This study is expected to be able to provide better understanding on bank's financial performance. The findings in this study may contribute in identifying factors which affect bank performance and hence may reduce bank losses through improvement in risk management. Bank managers may be able to identify their weaknesses in determining which factors mostly affect the bank performance so that they can make adjustment and improvement in order to protect bank's income and prevent bank failure.

Besides that, study on bank performance also helps investors and depositors to determine the income of the bank. The approaches applied in this paper are able to provide a benchmark on whether the bank performs above average in the banking industry. Thus, this study may help investors and depositors to understand the variables that affect the bank's financial performance and this is imperative in the assessment of the financial status of the bank.

Last but not least, this study may provide future researchers an opportunity to expand the empirical study of EVA model on bank performance in relation to the rapidly changing environment, policy, and banking technology. The researchers can also further strengthen the findings in this study or to raise any contradict findings that can lead to further investigation. On top of that, readers of this study also can be benefited to enhance their knowledge on how to evaluate the performance of commercial bank in Malaysia from different perspective.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter covers the review on related literature for the findings of studies on the dependent variables ROA, ROE & EVA as measurement of bank performance and CAMEL as determinant variables. It will also discuss the underlying theory of CAMEL framework and theoretical framework to show the relationship between independent variables and dependent variables. Lastly, it discusses the hypotheses development for this study.

2.2 Literature Review on Each Variable

2.2.1 Bank Performance (ROA and ROE)

Many researchers use ROA and ROE as measurements for bank performance in their studies. For example, in Tulsian (2014), the measurement for financial performance of a company is its profitability in order to assess its ability to generate earnings compared to its expenses and other relevant costs incurred during a specific period of time. The common profitability ratios are ROA and ROE which assess a firm in term of its assets and shareholder's equity respectively.

Another example can be found in Klapper and Love (2004), where ROA and ROE are described as accounting-based measurement, gauge the operating and financial performance of the firm. ROA measures the effectiveness of using the assets to generate

income to increase value to the shareholder whereas ROE measures the effectiveness of using shareholder's equity to generate income.

In addition, in accordance to Hutchinson and Gul (2004) and Mashayekhi and Bazazb (2008), accounting-based performance measures present the management actions outcome and hence are preferred over market-based measures when the relationship between corporate governance and firm performance is investigated. As a result, when a company shows a positive performance through ROA & ROE, it indicates its achievement of prior planned high performance (Nuryanah and Islam, 2011). In contrast, a negative value indicates failure of the planned high performance which resulted in investors' loss.

It can be seen that ROA and ROE measures bank profitability and proven to be effective in measure a firm's financial performance which widely adopted as accounting-based measurement. By using both ROA and ROE, the financial performance of banks can also be assessed and evaluated to determine whether the bank is performing and also to provide a benchmark for comparison in the banking industry.

There were various approaches used to examine bank performance by using both ROA and ROE. For example, Olson and Zoubi (2011) used bank categories, specific industry and macroeconomic factors as determinant variables affecting ROA and ROE. They found that loans assets, expenditure, capital proportion, credit jeopardy, inflation and the proportion of government ownership have significant impact on both dependent variables.

Another study by Sufian and Habibullah (2012) also used ROA to measure bank performance. They used bank specific factors, macroeconomics factors and other factors as determinants of bank performance in China.

The researchers mentioned above generally used banks' internal specific factors and external factors such as macroeconomic factors affecting ROA and ROE. The results highlighted that highly capitalized banks with larger capital and assets tend to be more profitable but are highly exposed and significantly affected by external factors such as inflation and interest rate. The researchers also reflected that banks with high operating expenditure tend to have negative relationship with bank profitability.

In another related study, Bashir (2000) examined the determinants of Islamic banks' performance in the Middle East using ROA and ROE as the dependent variables. From the study, the findings show that the capital and loan ratios are positively related with bank's profitability. The study also used bank specific factors and macroeconomic factors as the independent variables. The study highlighted that higher leverage and higher loans to assets ratios, lead to higher ROA.

It can be understood that the loans to assets ratio measures the total loans outstanding as a percentage of total assets. A high loan to asset ratio indicates that a bank is loaned up and its liquidity is low. Thus, the higher the ratio, the higher risk for the bank to default. The critical part for the findings is that it leads to higher ROA with higher ratio. Perhaps the findings were affirmed with high risk for high return to the assets generated by the banks in Middle East countries.

In another study, Kumbirai and Webb (2010) examined bank performance in South Africa by using financial ratios. The study emphasized on measurement of the bank's profitability, liquidity, and credit quality in loan portfolio of the banks. The examination discovered that overall the bank performance was increasing at the beginning of first and second years and subsequently decreased during the financial crisis in 2007 due to low liquidity and

deteriorating of credit quality. The authors had taken the period of financial crisis in their study and had clearly reflected the bank performance over the period which decreased during the crisis, affected by the downturn of financial market.

On the other hand, Almazari (2011) examined the financial performance of seven Jordanian commercial banks for the period of 2005 until2009 by using the measurement of bank size, asset management and operational efficiency affecting on two dependent variables, namely, ROA and interest income size. The author found that there is a positive relationship between financial performance and asset size, asset management and operational efficiency. The study concluded that when a bank has higher total deposit, larger loan portfolio, larger assets and larger shareholder's equity, it tends to have better profitability performance.

Lastly, through the study of method analysis, Almumani (2014) examined banks' financial performance by using two approaches which were trend analysis and inter-firm analysis. The research analyzed and compared the performance of Saudi banks that are listed in stock market for the period of 2007 until2011. The findings show that an increase in operating expenses and cost to income lead to a decrease in bank profitability, while an increase in assets and operating income leads to an increase in the profitability. Furthermore, the analysis also show that all banks are profitable and generating income with all the variables of study having positive mean value. Overall, the author had proved the Saudi joint venture banks to be more profitable with a capability to generate profits, absorbing loan losses whereas Saudi local banks are having more capacity of absorbing losses from assets and dominating in ROA.

2.2.2 Bank Performance (EVA)

EVA was invented by Stern Stewart & Co. in 1989 to measure residual income which is the difference between a firm's cost of capital and return on capital. It acts as a tool focuses on maximizing shareholder wealth. According to Stern Stewart & Co., EVA is calculated as a company's net operating profit after taxes (NOPAT) minus the dollar cost for the equity capital employed by the company. The dollar cost of equity capital employed by a company is equal to the company's equity capital multiplied by a percentage return of the company's shareholders require return. The EVA formula is illustrated as follows:

EVA= NOPAT – [WACC* Capital Invested]

Where,

NOPAT = Net Operating Profits After Tax

WACC = Weighted Average Cost of Capital

Capital Invested = Equity + long term debt at the beginning of the period

According to Raiyani & Joshi (2011), EVA can form a new performance benchmark to the banks and serves as an important tool to measure and improve the financial performance. The authors concluded that the EVA in term of percentage was higher for private banks because the amount of invested capital is low compared to public sector banks, while the EVA in terms of value was higher for public banks in each year due to their invested capital gives higher return to public sector banks so as to generate a consistent amount of NOPAT.

EVA was used to quantify the performance of Turkish banks listed in Istanbul Stock Exchange for the period of 2006 to 2010 (Teker and Sonmez, 2011). The results

demonstrate that EVA is the best performance indicator compared to ROA and ROE. Furthermore, Haddad (2012) examined the relationship between EVA, ROA, ROE and capital sufficiency proportion by utilizing multiple pool regression models. He found a positive and significant relationship between EVA and stock returns in Jordanian Banks.

In the study by Mensah et al. (2015), EVA was utilized to examine the determinants of bank's profitability in Ghana for the period of 1988 to 2011. The findings show that EVA is a better estimation compared to the standard accounting measures. They explained that EVA is better in capturing the bank specific factors than the ROA. The discoveries additionally demonstrated that EVA positively affects cost to pay proportion, the fluid resources and the aggregate resource of the banks.

2.2.3 Capital Adequacy (CA)

Capital adequacy is the first component of CAMEL framework. Roman and Sargu (2013) stated that a bank requires capital to manage its financial risk because the capital can provide protection to the bank against the bank losses and risk taking. It is the duty of the bank's regulatory authorities to establish a minimum requirement as long as bank's capital asset ratio conforms to the Basle Accord standard. In measuring bank's capital adequacy, bank capital is divided into two tiers; tier one capital comprises of equity capital and free reserves, whereas tier two capital comprises of subordinated debt (Berger & Humphrey, 1997).

Djalilov and Piesseb (2016) show that there is a positive and statistically significant relationship of capital adequacy ratio on bank performance and their findings are also supported by Dincer et al. (2011). The positive relationship highlighted that the increase of

capital would help the bank to settle unsecured debt and improve future prospects which would increase the bank profit.

In contrast, the findings of significant negative relationship can be found in the study done by Yin et al. (2013) in China after the financial crisis in 2008. The authors highlighted that the economy is under recovery stage after the crisis and thus increases funding costs for the bank which shows that an increase of capital would decrease the bank's profitability.

2.2.4 Asset Quality (AQ)

Asset quality is the second component of CAMEL framework which covers the loan quality to reflect the earnings of the bank. As indicated by Merchant (2012), the measurement of benefit quality is an essential factor to help the bank in understanding the hazard on the presentation of the account holders. Moreover, in the investigation of Teck (2000), the researcher expressed that the principle factors that influence the asset quality are quoted as "the degree of asset diversification, the size and duration of loans, the growth of loan portfolios and the practiced credit policy by the bank."

In the study of Roman and Sargu (2013), the authors measured the loan quality by using non-performing loans (NPL) to total loan ratio. The similar approach can also be found in Arafat et al. (2013) and both studies have shown significant relationship between NPL and bank performance. Indirectly, based on the previous studies, the asset quality which is measured by loan quality has significant relationship with bank performance.

The positive relationship between asset quality and bank performance can be found in Were and Wambua (2014) by using the proportion of loan loss and net interest margin among banks in the organization of Islamic countries. The authors explained that the positive relationship is due to the higher of credit risk, the higher the interest margin to cover the

potential risk, thus the interest rate would increase on high risk loan and indirectly increases the interest income of the bank.

On the other hand, significant negative relationship is found in Trinugroho et al. (2014) who revealed that the NPL had negative impact on the bank's profitability. They concluded that the higher the growth of NPL in loan portfolio, the lower the loan quality of bank. This is because the NPL would bring default payment to the loan and thus reducing the bank interest income.

2.2.5 Management (MGMT)

The third component of CAMEL framework is management. Based on the study by Teck (2000), it plays an important role in determining bank performance. It reflects the management soundness of a bank and helps in growth and success of the bank. The measurement of bank efficiency is taken from the perspective of expenditure which represent the cost of operation. The study suggested that bank manager should practice a high standard of integrity and professional competence to control and monitor expenditure in bank operation.

In the study of Muhmad and Hashim (2015), they had measured the bank management by using operating profit to net income ratio to measure the efficiency of management. Their study findings however show that management was insignificant, suggesting that there is the possibility of another ratio for management that can be used to test and measure the bank performance. The insignificant findings had given opportunity to other researchers to test on other possible ratios in order to measure the efficiency of bank management.

For example, Olweny and Shipho (2011) referred the bank management as control of expenditure which perceived that higher expenditure would result in higher operation cost

but may not affecting the bank's profit. They further explained that the positive relationship between expenditure and bank performance may be associated with higher volume of banking activities and therefore generating higher revenue. This research findings are also supported by Were and Wambua (2014) and they explained the higher of bank's expenditure, the higher of lending rate that the bank would increase in order to compensate their operation cost.

As the abovementioned two supportive journals for the positive relationship between bank management and bank performance, they had reviewed that the possibility may due to the bank staff's experience and expertise in operation management which can help the bank to save cost and prevent fraud case to cause loss to the bank. Eventually, the saving on cost and loss in bank operation had led to contribute in bank performance.

However, the negative relationship was found in the study of Yin et al. (2013) who suggested that the higher the efficiency of operation for the bank management, the higher the cost incurred for the management, hence the less profits recorded by the bank. The authors explained that this was due to the increased overhead expenses and therefore reduced the bank profitability.

2.2.6 Earnings (EA)

The next component in CAMEL framework is earnings which is a measurement of profitability calculated as a return on equity ratings (Peltonen et al., 2015). It is the bank's ability to obtain a refund of assets and capital for expansion benefit of banking business. According to Badrul and Bustamam (2017), earning is significant in assessing the performance of bank profitability and the result also suggested that both Malaysia and Indonesian banks have significant differences in management, earning and liquidity.

In the study by Apostolos et al. (2011) it was shown that a bank can increase its capital through retained earnings which by adopting advanced technology to increase its operational efficiency. The earning also measures the bank's ability to absorb losses, expand its financing and helps to develop its own capital. Their findings show that earning is significant and positively related with bank profit.

From the journal reviewed, bank earning is significant and closely related to bank's profit. It can be seen that the earnings of a bank may come from various banking products and services offered such as loans assets to generate interest income, late charges to generate non-interest income, service charges for payment transaction etc. The author also stated that the earnings not only generated from banking activities but also from capital provided.

2.2.7 Liquidity (LI)

The last component is liquidity which is measured by short-term deposits as a source of stable funding to manage liabilities and net short-term borrowing (Peltonen et al., 2015). Bhunia and Khan (2011) stated that liquidity management is very important in achieving bank management efficiency through a trade-off between liquidity and profitability. Several studies show that liquidity and bank profitability are having positive and negative relationship.

For the positive relationship findings, Bourke (1989) who examined bank performance in twelve countries in Europe, North America and Australia stated that liquid assets held by banks are able to provide short term funding for other banking services and thus able to generate revenue to increase bank profitability. The study is also supported by Kosmidou et al. (2005) who found that there is a significant positive relationship between liquidity and ROA by using the ratio of liquid assets and short-term funding. Consistent findings

also can be found in the related study by Kosmidou (2008) who examined the bank performance in Greek by using an unbalanced pooled time series data and found that banks with low liquid assets tend to have lower ROA.

However, for the negative relationship findings, Molyneux and Thornton (1992) stated for banks which are mandatory to hold liquid assets by the authority such as central bank, there is an inverse relationship between liquidity and profitability. The authors further explained that the bank only holds the liquid assets as requirement and without authorization to utilize them. Indirectly, the required liquid assets held may freeze the bank cash flow from utilization of the assets and thus reducing bank's profit which yield the negative relationship.

2.3 Underpinning Theory-CAMEL Framework

According to Uniform Financial Institutions Rating System (1997), the CAMEL framework has proven to be an effective and efficient mechanism to evaluate the financial soundness of commercial banks by identifying the components which require special attention to prevent bank failure.

In the study by Ahsan (2016), the CAMEL framework is recognized as international rating system that bank authority uses to rate financial institutions with scoring on a scale based on the five components. Bank with rating of one is considered the best and the rating of five is considered the worst for each of the component.

According to Khan (2008), the five categories of CAMEL ratings can be summarized as follows:

Table 2.1

Summary of CAMEL rating analysis

Rating	Composite Range	Description	Meaning
1	1.00-1.49	Strong	-Indicates strong performance -sound in every respect -performance is not affected by external factors
2	1.50-2.49	Satisfactory	-Indicates above average performance -Fundamentally sound -business operation is stable and can absorb from business fluctuation
3	2.50-3.49	Fair	-Indicates average performance -Easily affected by adverse business conditions -Will further deteriorate if the problem is not addressed and action is not taken properly.
4	3.50-4.49	Marginal	-Indicates unsatisfactory performance -threaten and affect bank performance -Unsafe and unsound condition may further develop to the worst condition which may result the insolvency of the bank
5	4.50-5.00	Unsatisfactory	-Indicates very unsatisfactory performance -bank is almost under critical insolvency stage and high with failure -require immediate remedial actions to overcome the bank failure

Source: Khan (2008)

Piyu (1992) had interpreted the five components of CAMEL as evaluation factors for bank performance. In terms of capital adequacy, the dimension is included to examine bank's capital through capital trend analysis. It is important to check the banks on whether or not they comply with regulations pertaining to capital to risk weighted assets ratio. It is used to protect depositors and to promote the stability of financial performance of the banks. The second factor is asset quality which is defined as the loan quality in portfolio that helps the bank in managing the credit risk due to the defaulted loans. It covers the bank's loan

quality which reflects the earning of the bank. It also involves assessing the bank's assets with investment risk factors by examining how the bank is affected by fair market value of investment when mirrored with the bank's book value of investments.

The third dimension of management is to reflect the efficiency and effectiveness of bank management. The management is controlling its costs and increase operational efficiency. It determines whether the bank is able to properly react to financial distress. It covers the management's ability and capability to ensure the safe operation and control risks of the bank's daily activities as well as to improve compliance operations.

Earning is important to measure profitability of the bank which is to reflect the bank's capability to manage its earning engaged in various activities like funding interim dividends, reserve to meet adequate capital adequacy, enhance financial technology, potential investment and retain competitiveness in the banking industry.

In terms of liquidity, the dimension is to measure the ability of the bank to pay its current obligation. An adequate liquidity will allow the bank to obtain sufficient funds by converting its current assets quickly for cash. Liquidity crisis may cause losing public confidence and tarnish the bank image and subsequently causing bank run. In the end, the bank is facing insolvency to meet its short-term debt.

2.4 Research Framework

From the CAMEL framework proposed above, it can be seen that the five components evaluate the overall bank performance in several perspectives that are directly linked with bank's profitability. Firstly, capital adequacy measure how well the bank has use its capital to support business activity and expand operation. The asset quality measures how well the assets that the bank hold or acquire in its loan portfolio can give impact to the loan loss

provision for the bank. In terms of management, it refers to how well the management operates and manages the bank's operation with adequate experience and expertise which can impact losses to the bank due to fraud case. Next is the earning variable which should directly measure the bank's income generated from assets and shareholder's equity. Lastly is the liquidity variable which measures how well the bank equips with cash and short-term assets to meet the liquidity need.

Arising from the above, it clearly shows that the bank performance which is measured by ROA, ROE and EVA model can be affected by the variables in CAMEL framework.

Figure 2.1: Proposed Research Framework

Figure 2.1 shows the five variables of CAMEL framework which act as independent variables affecting the bank performance, measured by three dependent variables as proposed in this study.

From the past studies, the summary of the relationships between the independent variables and the dependent variables are shown in table 2.2 as follows:

Table 2.2

Summary of the findings of previous studies

Independent Variables	Authors	Relationship with dependent variables
Capital Adequacy	1) Dincer et al (2011) 2) Yin et al (2013)	1) Significance positive relationship 2) Significance negative relationship
Asset Quality	1) Were and Wambua (2014) 2) Trinugroho et al (2014)	1) Significance positive relationship 2) Significance negative relationship
Management	1) Muhmad and Hashim (2015) 2) Olweny and Shipho (2011); Were and Wambua (2014) 3) Yin et al (2013)	1) Insignificance relationship 2) Significance positive relationship 3) Significance negative relationship
Earning	1) Badrul Munir and Bustamam (2017); Apostolos et al (2011)	1) Significance positive relationship
Liquidity	1) Bourke (1989); Kosmidou et al (2005); Kosmidou (2008) 2) Molyneux and Thornton (1992)	1) Significance positive relationship 2) Significance negative relationship

2.5 Hypotheses Development

Based on the objectives of the study, the following hypotheses are developed.

i. Capital Adequacy (CA)

H_1: There is a significant relationship between CA and Bank Performance, as measured by ROA, ROE and EVA.

ii. Asset Quality (AQ)

H_1: There is significant relationship between AQ and Bank Performance, as measured by ROA, ROE and EVA.

iii. Management (MGMT)

H_1: There is significant relationship between MGMT and Bank Performance, as measured by ROA, ROE and EVA.

iv. Earning (EA)

H_1: There is significant relationship between EA and Bank Performance, as measured by ROA, ROE and EVA.

v. Liquidity (LI)

H_1: There is a significant relationship between LI and Bank Performance, as measured by ROA. ROE and EVA.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter discusses the research methodology for conducting this study which includes the research design, population for sampling data, the sampling technique, data collection procedure, research instruments and statistical methods.

3.2 Research Design

According to Zikmund et at. (2013), research design is relevant to whether the benefits that result from a more sophisticated design to ensure accuracy, confidence and generalizability commensurate with the larger investment of resources.

The research design in this study adopts correlational research with hypothesis testing. As explained by Zikmund et al (2013), correlational is a research study conducted to identify the important factors associated with the variables of interest. This study attempts to investigate if the variables in CAMEL framework are related to bank performance measured by ROA, ROE and EVA.

3.2.1 Research Model

The econometric models in the study are stated as follows:

i. Model 1

$$ROA = \beta 0 + \beta 1\, CA + \beta 2\, AQ + \beta 3\, MGMT + \beta 4\, EA + \beta 5\, LI + \mu$$

ii. Model 2

$$ROE = \beta 0 + \beta 1\, CA + \beta 2\, AQ + \beta 3\, MGMT + \beta 4\, EA + \beta 5\, LI + \mu$$

iii. Model 3

$$EVA = \beta 0 + \beta 1\, CA + \beta 2\, AQ + \beta 3\, MGMT + \beta 4\, EA + \beta 5\, LI + \mu$$

Where,

ROA = Return on Assets

ROE = Return on Equity

EVA = Economy Value Added

CA = Capital Adequacy

AQ = Asset Quality

MGMT = Management

EA = Earnings

LI = Liquidity

β = Slope of Coefficient

μ = Error Terms

3.3 Sampling

In Malaysia, there are total of 27 commercial banks which consist of 8 local commercial banks and 19 foreign banks (Bank Negara Malaysia, 2018). The secondary data is collected from 16 commercial banks which consist of all the 8 local commercial banks and 8 selected foreign banks which operate in Malaysia. The commercial banks are listed in table 3.1 and table 3.2 as follows:

Table 3.1

List of local commercial banks in Malaysia

No	Local Banks
1	Affin Bank
2	Alliance Bank
3	Ambank
4	CIMB Bank
5	Hong Leong Bank
6	Maybank
7	Public Bank
8	RHB Bank

Source: Bank Negara Malaysia, 2018

Table 3.2

List of selected foreign commercial banks in Malaysia

No	Foreign Banks
1	Citibank
2	HSBC Bank
3	OCBC Bank
4	Standard Chartered Bank
5	UOB Bank
6	Deutsche Bank
7	Bank of China
8	Bangkok Bank

Source: Bank Negara Malaysia, 2018

3.4 Sampling Technique

The sampling technique for 8 local commercial banks will be based on entire population with licensing registered under BNM and approved by Ministry of Finance which are currently operating in Malaysia. The data collected from all 8 local commercial banks represents the local banks performance in Malaysia.

On the other hand, the sampling for 8 foreign banks will be based on bank size and data availability in publication which are selected from the 19 foreign banks that are currently registered and operating in Malaysia. The sampling of 8 foreign banks to be chosen represented different categories of bank size operating in Malaysia and also allow for better comparison with the 8 local banks.

The criteria of bank size are determined by the bank's total assets capitalization reported in 2017 annual report. The ranking of bank size for 8 local banks and 8 selected foreign banks are categorized as follows:

Table 3.3

Ranking of bank size for 8 local banks

Banks	Bank Size by Total Asset Capitalizations 2017 (in billion Malaysia ringgit)	Ranking
Maybank	510	1
CIMB Bank	308	2
Public Bank	314	3
Hong Leong Bank	195	4
RHB Bank	178	5
Ambank	134	6
Alliance Bank	54	7
Affin Bank	47	8

Source: Annual report 2017

As can be seen in table 3.3, Maybank is ranked the highest which considered largest bank in terms of size and Affin Bank is the smallest bank in terms of total asset capitalization in 2017.

Table 3.4

Ranking of bank size for 8 selected foreign banks

Banks	Bank Size by Total Asset Capitalizations 2017 (in billion Malaysia ringgit)	Rankings
UOB Bank	102	1
OCBC Bank	79	2
HSBC Bank	67	3
Standard Chartered Bank	42	4
Citibank	41	5
Bank of China	13	6
Deutsche Bank	11	7
Bangkok Bank	5	8

Source: Annual report 2017

Table 3.4 shows that United Overseas Bank is ranked the highest whereas Bangkok Bank is ranked the lowest in terms of asset capitalization in 2017.

3.5 Data Collection Procedure

This study collected secondary data from 8 local commercial banks and 8 foreign banks in Malaysia through the financial statement and income statement for 5 years from 2013 to 2017 from databases and documents that have been officially published and made available to public. The 5-year period is in-line with the study by Kumbirai & Webb (2010) who used the period of 2005 to 2009 for the financial ratio analysis of commercial bank performance in South Africa as well as a comparative study conducted by Ibrahim (2015) which used the time period from 2002 to 2006. There is a total of 80 observations from 16 banks in the panel data, analyzed using Eviews software.

3.6 Research Variables

The research variables of this study are tabulated as follows:

Table 3.5
Summary of measurements for each variable

Variables	**Descriptions**	**Sources**	**Proxies**	**Scale of Measurement**
ROA	Return on Asset	Bank's Annual Report retrieved from respective bank official website	Net Profit/Total Assets	Percentage
ROE	Return on Equity	Bank's Annual Report retrieved from respective bank official website	Net Profit/Total Equity	Percentage
EVA	Economic Value Added	Bank's Annual Report retrieved from respective bank official website	NOPAT-[WACC x Capital Invested]	Value in logarithm form

CA	Capital Adequacy	Bank's Annual Report retrieved from respective bank official website	Total Capital/ Total Assets	Percentage
AQ	Asset Quality	Bank's Annual Report retrieved from respective bank official website	Non-Performing Loans/ Total Loans	Percentage
MGMT	Management	Bank's Annual Report retrieved from respective bank official website	Operating Expense/ Net Operating profit	Percentage
EA	Earnings	Bank's Annual Report retrieved from respective bank official website	Net Interest Income/ Total Assets	Percentage
LI	Liquidity	Bank's Annual Report retrieved from respective bank official website	Liquid Asset/ Total Assets	Percentage

Table 3.5 has described the measurement for each variable taken in this study which included sources for data collected, the proxy for each of the variable and scale of measurement adopted.

3.7 Statistical Methods

The data analysis in this study is using multiple regression analysis, specifically, the Ordinary Least Square (OLS) panel regression to provide an initial empirical study on EVA model and variables in the CAMEL framework. The hypotheses are tested with p-value approach based on the 5% level of significance.

In addition, the significance of the model is tested using F-test approach based on the 5% level of significance to test the null hypothesis that there is no linear relationship between the variables.

The model also looks at the R^2 result to determine the relationship between each of the independent variable and dependent variable. Besides that, the normality of the model is also checked using Jarque-Bera test to ensure the variables have normal distribution.

Lastly, the correlation analysis is also tested on the three econometric models which describe the statistical relationship between two variables based on each observation. The positive relationship would indicate the values range from 0 to +1.00 whereas the negative relationship would range from 0 to –1.00. According to Reinard (2006), the perfect relationship would indicate the value as 1 or -1 and zero value as no relationship. The strong relationship is above the value of 0.75 whereas less than 0.25 as weak relationship.

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter discusses the findings of the study which includes descriptive analysis, correlation analysis, normality test and panel regression analysis of the regression between financial performance and variables of CAMEL framework for local and foreign banks.

4.2 Descriptive Analysis

The descriptive analysis provides the basic features of the data in the study. It is used to present quantitative analysis and provide summary in manageable form. The summary of descriptive statistic for each variable in the sample is shown as below:

Table 4.1
Summary of descriptive statistic for each variable

	ROA	ROE	EVA	CA	AQ	MGMT	EA	LI
Mean	1.0685	10.82475	5.96475	10.93987	1.627875	3.2765	1.797375	12.809
Median	1.085	11.25	6.08	10.345	1.43	3.08	1.75	8.35
Maximum	1.7	19.68	6.81	26.25	4.3	6.44	3.1	45.66
Minimum	0.13	0.86	4.4	5.39	0.02	1.43	0.84	1.67
Std. Dev.	0.310594	3.701581	0.573093	3.307208	1.014101	0.908774	0.398233	10.93275
Skewness	-0.517479	-0.483332	-0.916398	2.11308	0.601946	1.018087	0.577321	1.668744
Kurtosis	3.173982	3.457018	3.205602	8.999079	2.980632	4.441366	4.365934	5.053888
Jarque-Bera	3.671358	3.811013	11.33804	179.4979	4.83244	20.74514	10.66326	51.19096
Probability	0.159505	0.148747	0.003451	0	0.089258	0.000031	0.004836	0
Sum	85.48	865.98	477.18	875.19	130.23	262.1	143.79	1024.72

Sum Sq. Dev.	7.6210 2	1082.4 34	25.946 4	864.07 25	81.243 74	65.243 68	12.528 55	9442.4 69
Observatio ns	80	80	80	80	80	80	80	80

From the table 4.1 above, in terms of the mean, LI variable has the highest value of 12.81% whereas ROA has the lowest value of 1.07%.

In terms of median, ROE has the highest value of 11.25% and ROA has the lowest value of 1.09%. On the other hand, the largest differential spread between maximum and minimum values is LI variable with 43.99% and ROA is having the smallest spread of 1.57%.

The spread of data is also shown by standard deviation which measure how spread out the data is from the mean. The LI variable is having high standard deviation of 10.93% whereas ROA is having lowest value of 0.31%.

In term of skewness, ROA, ROE and EVA have shown negative value which indicate left skewed distribution whereas CA, AQ, MGMT, EA and LI have shown positive value which indicate right skewed distribution.

Lastly, kurtosis indicates how the peak and tails of the distribution differ from the normal distribution. A positive value would indicate the distribution has heavier tails and sharper peak than the normal distribution whereas negative value indicates the lighter tails and flatter peak. From the table 4.2, all the variables are having positive values and CA has shown the highest value of 9.00% and AQ with the lowest value of 2.98%.

4.3 Correlation Analysis

This section provides the results of the correlation between the independent variables and the dependent variables in the study in order to detect whether there is serious multicollinearity problem in the models of the study.

The output of the correlation analysis for the 3 models are shown below:

Table 4.2
Result of correlation analysis for Model 1

	ROA	CA	AQ	MGMT	EA	LI
ROA	1.000000					
CA	-0.207501	1.000000				
AQ	-0.221503	-0.255194	1.000000			
MGMT	-0.369076	0.137734	-0.368010	1.000000		
EA	0.390014	-0.127819	0.521322	-0.503785	1.000000	
LI	0.136154	0.244301	-0.214663	0.318291	-0.093990	1.000000

From the table 4.2 above, CA, AQ and MGMT are negatively correlated whereas EA and LI are positively correlated with ROA.

Table 4.3
Result of correlation analysis for Model 2

	ROE	CA	AQ	MGMT	EA	LI
ROE	1.000000					
CA	-0.589230	1.000000				
AQ	-0.080481	-0.255194	1.000000			
MGMT	-0.342016	0.137734	-0.368010	1.000000		
EA	0.360784	-0.127819	0.521322	-0.503785	1.000000	
LI	0.119474	0.244301	-0.214663	0.318291	-0.093990	1.000000

From the table 4.3 above, CA, AQ and MGMT are negatively correlated whereas EA and LI are positively correlated with ROE.

Table 4.4

Result of correlation analysis for Model 3

	EVA	CA	AQ	MGMT	EA	LI
EVA	1.000000					
CA	-0.639095	1.000000				
AQ	-0.098844	-0.255194	1.000000			
MGMT	-0.486412	0.137734	-0.368010	1.000000		
EA	0.278668	-0.127819	0.521322	-0.503785	1.000000	
LI	-0.476592	0.244301	-0.214663	0.318291	-0.093990	1.000000

From the table 4.4 above, CA, AQ, MGMT and LI are negatively correlated whereas EA is positively correlated with EVA.

Throughout the correlation analysis, the highest value of 0.521322 between AQ and EA indicates strong positive relationship. According to Reinard (2006), very strong relationship lies between ± 0.76 to ± 0.99, hence there is no multicollinearity problem in all the models of this study.

4.4 Normality Test

The normality test is used for statistical analysis to determine the reliability of data in the models and to check whether statistical errors are normally distributed. The hypothesis is tested with Jaeque-Bera test, in which the error terms in the model are normally distributed if the p-value is more than 0.05. From the histogram normality test, the p-value for the 3 models are 0.071912 (Model 1), 0.701845 (Model 2) and 0.129177 (Model 3) respectively which are higher than 0.05, thus do not reject the null hypothesis. The normality test suggested that the error terms in the 3 models are normally distributed.

4.5 Panel Regression Analysis

The empirical results from panel least square regression for the three models are shown as below:

Model 1

$$ROA = 1.326635 - 0.029719CA - 0.203857AQ - 0.130535MGMT + 0.410914EA + 0.006866LI$$

Where,

β_0 equals to 1.326635. Given the total amount of CA, AQ, MGMT, EA and LI are equal to zero, on average, the ROA will equal to 1.33%.

β_1 equals to -0.029719. Given the CA increment by 1%, on average the ROA will decline by 0.03%, holding other variables constant.

β_2 equals to -0.203857. Given that AQ increases by 1%, on average the ROA will decline by 0.20%, holding other variables constant.

β_3 equals to -0.130535. Given that MGMT increases by 1%, on average the ROA will decline by 0.13%, holding other variables constant.

β_4 equals to 0.410914. Given that EA increases by 1%, on average the ROA will increase by 0.41%, holding other variables constant.

β_5 equals to 0.006866. Given that LI increases by 1%, on average the ROA will increase by 0.01%, holding other variables constant.

Table 4.5

Results of panel data regression on Model 1

Variables	Coefficient	Standard Error	t-Statistic	Probability
C	1.326635	0.207616	6.389853	0.0000***
CA	-0.029719	0.007358	-4.039016	0.0001***
AQ	-0.203857	0.027741	-7.348534	0.0000***
MGMT	-0.130535	0.031057	-4.203084	0.0001***
EA	0.410914	0.074510	5.514852	0.0000***
LI	0.006866	0.002304	2.980336	0.0039***

Note: *** denotes significantly at significance level of 0.01. Dependent variable: ROA.
R-squared = 0.592447; Adjusted R-squared = 0.564910
F-statistic = 21.51428; Prob. (F-statistic) = 0.000000

From the table 4.5 above, the hypothesis can be tested by T-statistic (T-test) which to reject null hypothesis if p-value of T-statistic is lesser than significance level of 0.05. The results show that all independent variables have p-value less than 0.05 in Model 1, indicating that the null hypotheses are rejected. Therefore, there is enough evidence to conclude that all the independent variables are significant to ROA.

The R^2 of 0.592447 indicates that on average, approximately 59% of the total variation in ROA is explained by the changes in all the independent variables. The adjusted R^2 of 0.564910 explains that approximately 56% goodness of fit in the Model 1 after adjusting for the number of independent variables.

The F-statistic of the model is less than 0.05; therefore the null hypothesis is rejected. There is sufficient evidence to conclude that the Model 1 is significant in explaining the ROA model.

Model 2

$$ROE = 17.69178 - 0.728839CA - 2.058472AQ - 0.995943MGMT + 4.201526EA + 0.013158LI$$

Where,

β_0 equals to 17.69178. Given the total amount of CA, AQ, MGMT, EA and LI are equal to zero, on average the ROE will equal to 17.69%.

β_1 equals to -0.728839. Given the CA increases by 1%, on average the ROE will decrease by 0.73%, holding other variables constant.

β_2 equals to -2.058472. Given that AQ increases by 1%, on average the ROE will decrease by 2.06%, holding other variables constant.

β_3 equals to -0.995943. Given that MGMT increases by 1%, on average the ROE will decrease by 1.00%, holding other variables constant.

β_4 equals to 4.201526. Given that EA increases by 1%, on average the ROE will increase by 4.20%, holding other variables constant.

β_5 equals to 0.013158. Given that LI increases by 1%, on average the ROE will increase by 0.01%, holding other variables constant.

Table 4.6

Result of panel data regression on Model 2

Variables	Coefficient	Standard Error	t-Statistic	Probability
C	17.69178	2.222596	7.959965	0.0000***
CA	-0.728839	0.078770	-9.252728	0.0000***
AQ	-2.058472	0.296979	-6.931381	0.0000***
MGMT	-0.995943	0.332475	-2.995540	0.0037***
EA	4.201526	0.797659	5.267323	0.0000***
LI	0.013158	0.024661	0.533561	0.5952

Note: *** denotes significantly at significance level of 0.01. Dependent variable: ROE.
R-squared = 0.671152 ; Adjusted R-squared = 0.648932
F-statistic = 30.20554; Prob (F-statistic)=0.000000

From the table 4.6 above the results show that the p-values of CA, AQ, MGMT and EA are less than 0.05 indicating that null hypotheses are rejected. On the other hand, the p-value of LI (0.5952) is more than significance level of 0.05 which suggested that the null hypothesis cannot be rejected. Therefore, there is enough evidence to conclude that CA, AQ, MGMT and EA are significantly related while LI is insignificantly related to ROE.

The R^2 of 0.671152 indicates that on average, approximately 67% of the total variation in ROE is explained by all the independent variables. The adjusted R^2 of 0.648932 explains that approximately 65% goodness of fit in the Model 2 after adjusting for the number of independent variables.

The p-value of F-statistic (0.0000) is less than 5% level of significance; therefore the null hypothesis is rejected. There is sufficient evidence to conclude that the Model 2 is significant in explaining the ROE model.

Model 3

$$EVA = 7.845589 - 0.101396CA - 0.185951AQ - 0.222283MGMT + 0.247388EA - 0.014464LI$$

Where,

β_0 equals to 7.845589. Given the total amount of CA, AQ, MGMT, EA and LI are equal to zero, on average the EVA will equal to 7.85%.

β_1 equals to -0.101396. Given that CA increases by 1%, on average the EVA will decrease by 0.10%, holding other variables constant.

β_2 equals to -0.185951. Given that AQ increases by 1%, on average the EVA will decrease by 0.19%, holding other variables constant.

β_3 equals to -0.222283. Given that MGMT increases by 1%, on average the EVA will decrease by 0.22%, holding other variables constant.

β_4 equals to 0.247388. Given the EA increases by 1%, on average the EVA will increase by 0.25%, holding other variables constant.

β_5 equals to 0.014464. Given LI increases by 1%, on average the EVA will decrease by 0.01%, holding other variables constant.

Table 4.7
Results of panel data regression on Model 3

Variables	Coefficient	Standard Error	t-Statistic	Probability
C	7.845589	0.332865	23.56985	0.0000***
CA	-0.101396	0.011797	-8.595071	0.0000***
AQ	-0.185951	0.044477	-4.180865	0.0001***
MGMT	-0.222283	0.049793	-4.464152	0.0000***
EA	0.247388	0.119461	2.070868	0.0419**
LI	-0.014464	0.003693	-3.916196	0.0002***

Note: *** and ** denote significantly at significance level of 0.01 and 0.05 respectively.
Dependent variable: EVA.
R-squared = 0.692293; Adjusted R-squared = 0.671502
F-statistic = 33.29778; Prob (F-statistic) = 0.000000

From the above table 4.7, the results show that the p-values of all independent variables are less than 0.05 in the Model 3 indicating that the null hypotheses are rejected. Therefore, there is enough evidence to conclude that all the independent variables are significantly related to EVA.

The R-squared of 0.692293 indicates that on average, approximately 69% of the total variation in EVA is explained by all the independent variables. The adjusted R-squared of 0.671502 explains that approximately 67% goodness of fit in the Model 3 after adjusting for the number of independent variables.

The p-value of the F-statistic is less than 0.05, therefore the null hypothesis is rejected. There is sufficient evidence to conclude that Model 3 is significant in explaining the EVA model.

In summary, the 3 models have demonstrated the significance of CAMELS framework in its relationship with the financial performance of the banks, using the ROA, ROE and EVA models. Among the 3 models, the EVA model has the highest adjusted R-squared value of 69%, implying that the EVA is better than ROA and ROE in terms of explaining the relationship between banks financial performance and the variables in the CAMEL framework.

All the independent variables have shown significant relationships at significance level of 5% in the 3 models except for LI variable in the ROE model. The findings of significance relationship for independents variables are consistent with earlier studies with the

exception of LI which in contrast to the findings found in the previous studies such as Bourke (1989); Kosmidou et al. (2005); and Kosmidou (2008). With reference to the significance of LI variable in Model 1 (ROA) and Model 3 (EVA), it is also interesting found out that there is positive relationship between LI and ROA but negative relationship with EVA.

However, the insignificant findings for LI variable is supported by the finding in the study on Saudi listed companies conducted by Rehman et al. (2015) who found that current ratio, quick ratio and cash ratio were insignificantly related to ROE. Although the study was not related to banking industry, it does provide an opportunity for future researchers to further enhance the findings for the relationship between the liquidity and ROE for the banks.

CHAPTER FIVE

DISCUSSION, IMPLICATIONS AND CONCLUSION

5.1 Introduction

This chapter provides the discussion of major findings, implications of the study, limitations of the study, recommendations for future research and the conclusion for the study.

Based on the research objectives of this study the following have been achieved:

1) To examine the relationship between the variables in the CAMEL framework and ROA.
2) To investigate the relationship between the variables in the CAMEL framework and ROE.
3) To analyze the relationship between the variables in the CAMEL framework and EVA.

5.2 Discussion of Major Findings

The summary of data analysis for each independent variable is provided in the table below:

Table 5.1
Summary of major findings

Independent variable	Result	Relationship
CA	Significant with ROA, ROE and EVA.	Negative relationship with ROA, ROE and EVA.
AQ	Significant with ROA, ROE and EVA.	Negative relationship with ROA, ROE and EVA.
MGMT	Significant with ROA, ROE and EVA.	Negative relationship with ROA, ROE and EVA.
EA	Significant with ROA, ROE and EVA.	Positive relationship with ROA, ROE and EVA.
LI	Significant with ROA and EVA but insignificant with ROE.	Positive relationship with ROA and ROE but negative relationship with EVA.

5.2.1 Capital Adequacy (CA) and Bank Financial Performance (ROA, ROE and EVA)

Based on the Table 5.1, CA has shown negative significant relationship with bank performance, consistent with the findings in Yin et al. (2013) which examined the banks in China after the financial crisis. The banks in China were struggling to increase their capital due to rising of funding cost and consequently reducing bank's profitability.

In Malaysia, the negative relationship may due to implementation of Basel III with a gradual phase-in from 2013 till 2019. The aim of Basel III is to strengthen the quality of capital held by banking institutions and BNM had finalized in mid-2012 with the issuance of reporting guidelines on capital adequacy under Basel III and to be implemented beginning January 2013. With the raising of minimum capital requirement and introduction of capital buffer, the risk-weighted capital ratio has been adjusted from 8% to 10.5% with the combination of tier 1 and tier 2 capital. As a result, the bank will require to hold variable amounts of capital buffers in order to meet the minimum capital requirement of 10.5% which affected bank performance due to lack of capital to expand or support business activity. Hence, the findings in this study explains the negative significant relationship between CA and bank performance.

5.2.2 Asset Quality (AQ) and Bank Financial Performance (ROA, ROE and EVA)

AQ has shown negative significant relationship with bank performance in this study which is consistent with the findings by Trinugroho et al. (2014). The larger of loan assets that the bank held, the higher the chance that the bank is exposed to non-performing loan loss when borrowers are defaulted in their loans. The bank would set provision for loans to mitigate the credit risk.

It can be clearly seen that Malaysia Financial Reporting Standard (MFRS) 139 requires the bank to recognize the provisioning when loan losses are incurred which substantially affect the bank's earning. Furthermore, MFRS 139 is replaced by an even tighter MFRS 9 with effect from Jan 1, 2018 which requires banks to make appropriate provision in anticipation of future potential loan losses including undrawn loan commitment. In short, the higher loan asset quality, the greater the bank may be exposed to credit risk and thus lead to higher provisioning in affecting the bank performance.

5.2.3 Management (MGMT) and Bank Financial Performance (ROA, ROE and EVA)

From the findings, MGMT is consistent with the findings in Yin et al. (2013) which indicated negative significant relationship with financial performance. The higher the efficiency of bank operation, the higher the payout for the bank's staffs and senior management due to high level of achievement for key performance indicators. The bank may retain its earnings for salary increment, incentives, bonuses and commissions to its employees who achieved high performance in order to encourage and ensure continuing of integrity towards their job commitments in the bank. As a result, the bank earnings are affected due to high efficiency of management.

5.2.4 Earning (EA) and Bank Financial Performance (ROA, ROE and EVA)

Earning variable (EA) is positively and significantly related with banks' financial performance. In the earlier studies such as by Badrul and Bustamam (2017) and Apostolos et al. (2011), it was also revealed that EA is significant and closely related to bank's earnings. The findings suggested that interest with higher rate would lead to higher interest

income, thus resulted the bank's earnings to increase. Interest income and non-interest income have always become the main sources of income for the bank.

In a loan portfolio, bank is charging interest to every loan granted to borrower at base lending rate plus spread. The base lending rate is referred to the funding cost for the bank and the spread charged to borrower varies depending on the risk of borrowings. Hence, the spread charged on the interest rate for every loan granted has contributed the bank's earning for interest income. Besides that, the non-interest income also becomes a portion of bank's earnings which generated from service charge on financial services provided to its customers.

5.2.5 Liquidity (LI) and Bank Financial Performance (ROA, ROE and EVA)

The findings for LI lead to significant relationship with ROA (positive) and EVA (negative) but insignificant with ROE (positive). The positive significant findings are also found in Bourke (1989) and Kosmidou et al. (2005). The findings revealed that the higher the liquidity of financial assets that the bank hold, the higher the bank financial performance. When the bank holds short-term assets, it can easily turn into cash to meet its short-term liability as well as to utilize the cash surplus to expand banking business and support for daily operation. Hence, the stability of cash flow enables the bank easily to manage the gap of maturity between assets and liabilities.

However, the result of insignificant relationship between LI and ROE was found in this study. The findings suggested that the ROE is not affected by liquidity. Not like other organizations, the business model conducted by the bank is strictly governed by central bank (BNM). The liquidity of the bank can be affected by holding the vault cash to satisfy cash withdrawal requests of its customers and to meet the Statutory Require Reserve (SRR)

set by BNM to prevent bank failure. The ROE is calculated based on net income divided by bank's equity. The ROE can be increased by increasing leverage but this is limited based on the guidelines set by BNM. Hence, the liquidity hardly affects the ROE of the bank.

5.3 Implication of Study

This study has intended to provide empirical investigation on measurement of financial performance by using conventional ROA and ROE as well as EVA model to evaluate the bank performance. Based on the past studies, the CAMEL framework is proven to be an effective tool to evaluate banks performance using ROA and ROE. The CAMEL framework is served as internal factors for the banks which gives the dynamic assessment measures on overall financial performance of the banks.

The study has shown that the implication of the CAMEL framework on EVA model is significant in evaluating bank financial performance. Bank management should not only focus on the bank's profit which is measured by ROA and ROE, they should also consider EVA model as it takes into consideration of shareholder wealth maximization.

In addition, the standard accounting profits rarely reflect the amount of cash left at year end for shareholders, but with the EVA model, NOPAT might show profitability according to the generally accepted accounting principles (GAAP). Despite the fact that WACC is a complex function of the capital structure and varies according to bank's internal policy and guidelines, if carried out consistently, it can help the bank to identify the best investment and outperform its rivals with lower or negative EVA. According to Stern Stewart, it also serves as a critical driver of stock performance by providing the signal that the bank is increasing the positive value of EVA.

5.4 Limitations of Study

There are few limitations in this study. Firstly, the limitation is introducing of dummy variable into the model such as local and foreign variables. Due to its complexity which may increase difficulty of the study to provide the empirical result and also may be involved of potential practical problem during regression analysis which require more time to resolve it.

Secondly, in view of this study intends using only bank financial information available in the financial statement, hence, there is a limitation with introducing of exogenous factors as proposed by Athanasoglou et al. (2006) such as macroeconomic factors, monetary policy, financial technology and other factors which could also affect bank performance.

Lastly, due to time constraints, this study only covers the conventional commercial banks in Malaysia and does not cover Islamic banks.

5.5 Recommendations for Future Research

As stated in the limitations of the study, this research would recommend future researchers to enhance the models by introducing the dummy variables for local and foreign banks in order to distinguish between the two groups. In addition, future studies may want to apply Fixed or Random Effects models as well as Generalized Method of Moments (GMM) regression.

Secondly, future studies are recommended to include external factors in evaluating the bank performance such as competition, social, legal and technological changes, economic and political environment. These factors may enable a more complete and accurate

evaluation the true performance of the banks in various dimensions and not just in terms of financial performance.

Lastly, future research may want to use the CAMEL framework and EVA model to compare the financial performance between commercial banks and Islamic banks.

5.6 Conclusion

As a final point, CAMEL framework is important in evaluating the bank's financial performance with ROA, ROE and EVA models as financial performance indicators. Taking everything into account, the banking sector must be given priority to attain sustainability in financial sector to ensure smooth and efficient operation and helps to reduce the risk of failure of an economy. Banks' financial performance is one of the main indicators used to evaluate the financial state of a nation. Therefore, the regulators in the banking industry should be able to properly evaluate banks' financial performance using CAMEL framework.

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Appendix 1

Affin Bank Berhad

Financial Items	**2013 (RM'000)**	**2014 (RM'000)**	**2015 (RM'000)**	**2016 (RM'000)**	**2017 (RM'000)**
Net profit	508,599	476,479	261,290	351,316	282,852
Total Assets	45,390,601	48,333,687	48,745,249	48,075,735	48,972,650
Total Equity	3,995,107	4,730,122	4,978,755	5,177,972	7,504,447
Net operating profit after tax	616,461	605,507	500,667	487,451	418,679
Total capital	4,391,221	4,789,698	5,231,908	5,686,075	5,188,642
Non-performing Loans	363,583	452,130	763,856	515,330	989,469
Total Loans	30,178,910	32,292,551	32,902,688	30,753,354	29,143,900
Interest Expense	1,308,113	1,451,595	1,495,791	1,495,688	1,473,986
Net interest income	842,732	848,191	829,653	829,529	826,113
Short-term assets	4,987,696	3,777,042	2,203,022	3,337,831	2,209,948
WACC	9.82%	11.44%	8.91%	11.57%	12.43%
Capital Invested	538,557	556,973	701,441	810,720	993,998
Financial Ratios					
ROA	1.12%	0.99%	0.54%	0.73%	0.58%
ROE	12.73%	10.07%	5.25%	6.78%	3.77%
EVA	5.75	5.73	5.64	5.60	5.47
Capital adequacy	9.67%	9.91%	10.73%	11.83%	10.59%
Asset quality	1.20%	1.40%	2.32%	1.68%	3.40%
Management	4.33%	4.50%	4.55%	4.86%	5.06%
Earning	1.86%	1.75%	1.70%	1.73%	1.69%
Liquidity	10.99%	7.81%	4.52%	6.94%	4.51%

Appendix 2

Ambank Berhad

Financial Items	**2013 (RM'000)**	**2014 (RM'000)**	**2015 (RM'000)**	**2016 (RM'000)**	**2017 (RM'000)**
Net profit	1,663,488	1,871,055	2,044,553	1,399,479	1,408,776
Total Assets	127,572,261	132,353,257	133,803,824	133,764,000	134,767,615
Total Equity	12,941,330	14,094,389	15,507,424	16,119,388	17,152,884
Net operating profit after tax	2,282,308	2,580,447	2,566,766	1,521,503	1,605,085
Total capital	14,112,086	15,292,910	15,524,225	15,572,852	16,203,257
Non-performing Loans	292,479	308,206	337,426	75,246	132,066
Total Loans	82,586,332	87,170,577	86,173,795	86,513,254	89,865,085
Interest Expense	2,304,981	2,405,106	2,346,099	2,459,459	2,432,014
Net interest income	2,218,448	2,271,927	1,981,135	1,637,756	1,564,598
Short-term assets	11,780,148	10,287,346	10,758,600	11,988,321	8,337,200
WACC	11.30%	11.70%	10.10%	11.10%	11.40%
Capital Invested	415,945	488,218	483,093	487,381	684,784
Financial Ratios					
ROA	1.30%	1.41%	1.53%	1.05%	1.05%
ROE	12.85%	13.28%	13.18%	8.68%	8.21%
EVA	6.35	6.40	6.40	6.17	6.18
Capital adequacy	11.06%	11.55%	11.60%	11.64%	12.02%
Asset quality	0.35%	0.35%	0.39%	0.09%	0.15%
Management	2.79%	2.76%	2.72%	2.84%	2.71%
Earning	1.74%	1.72%	1.48%	1.22%	1.16%
Liquidity	9.23%	7.77%	8.04%	8.96%	6.19%

Appendix 3

Alliance Bank Malaysia Berhad

Financial Items	**2013 (RM'000)**	**2014 (RM'000)**	**2015 (RM'000)**	**2016 (RM'000)**	**2017 (RM'000)**
Net profit	538,123	563,548	530,780	522,038	512,123
Total Assets	43,692,029	48,074,694	53,141,521	55,627,043	54,089,064
Total Equity	4,035,169	4,166,016	4,495,105	4,842,008	5,114,198
Net operating profit after tax	693,761	720,803	736,010	735,188	777,516
Total capital	4,241,197	4,311,829	4,593,992	6,042,963	4,522,368
Non-performing Loans	524,030	555,392	688,569	688,435	600,685
Total Loans	27,771,741	31,818,991	36,566,032	38,410,724	38,991,689
Interest Expense	698,866	822,711	951,818	1,072,622	1,032,668
Net interest income	730,459	778,635	820,589	847,792	847,545
Short-term assets	1,296,681	2,129,782	2,696,183	4,943,700	1,381,779
WACC	10.11%	8.90%	7.54%	8.66%	7.96%
Capital Invested	436,900	393,609	419,524	441,021	1,194,828
Financial Ratios					
ROA	1.23%	1.17%	1.00%	0.94%	0.95%
ROE	13.34%	13.53%	11.81%	10.78%	10.01%
EVA	5.81	5.84	5.85	5.84	5.83
Capital adequacy	9.71%	8.97%	8.64%	10.86%	8.36%
Asset quality	1.89%	1.75%	1.88%	1.79%	1.54%
Management	2.52%	2.59%	2.60%	2.79%	2.65%
Earning	1.67%	1.62%	1.54%	1.52%	1.57%
Liquidity	2.97%	4.43%	5.07%	8.89%	2.55%

Appendix 4

CIMB Bank Berhad

Financial Items	**2013 (RM'000)**	**2014 (RM'000)**	**2015 (RM'000)**	**2016 (RM'000)**	**2017 (RM'000)**
Net profit	2,141,950	2,477,636	2,747,485	2,551,306	3,640,865
Total Assets	234,603,951	264,948,946	291,399,406	300,789,042	308,454,399
Total Equity	20,021,480	24,090,741	26,923,723	28,680,657	31,704,640
Net operating profit after tax	2,968,948	3,494,680	3,616,832	3,690,579	4,964,229
Total capital	17,170,583	22,306,424	25,377,309	26,513,455	27,708,590
Non-performing Loans	1,818,887	1,875,539	2,133,068	2,612,188	3,175,844
Total Loans	132,833,310	150,874,563	170,669,912	182,585,775	176,897,036
Interest Expense	3,804,657	3,987,855	4,837,334	5,530,537	5,977,959
Net interest income	4,583,300	5,082,718	5,253,392	5,165,060	5,512,001
Short-term assets	18,467,152	21,435,099	14,159,386	10,358,003	19,642,521
WACC	6.55%	7.04%	6.62%	7.12%	6.92%
Capital Invested	10,836,864	9,490,641	10,160,339	11,472,321	12,381,377
Financial Ratios					
ROA	0.91%	0.94%	0.94%	0.85%	1.18%
ROE	10.70%	10.28%	10.20%	8.90%	11.48%
EVA	6.35	6.45	6.47	6.46	6.61
Capital adequacy	7.32%	8.42%	8.71%	8.81%	8.98%
Asset quality	1.37%	1.24%	1.25%	1.43%	1.80%
Management	2.86%	2.64%	2.83%	3.03%	3.38%
Earning	1.95%	1.92%	1.80%	1.72%	1.79%
Liquidity	7.87%	8.09%	4.86%	3.44%	6.37%

Appendix 5

Hong Leong Bank Berhad

Financial Items	**2013 (RM'000)**	**2014 (RM'000)**	**2015 (RM'000)**	**2016 (RM'000)**	**2017 (RM'000)**
Net profit	1,450,454	1,590,939	1,775,963	1,604,594	1,744,051
Total Assets	145,500,383	148,821,876	160,680,587	162,238,461	164,816,685
Total Equity	11,340,417	12,330,498	13,428,164	17,430,733	18,442,381
Net operating profit after tax	2,061,467	2,110,313	2,202,024	2,053,088	2,455,294
Total capital	12,194,141	13,880,778	14,353,199	15,718,221	16,584,405
Non-performing Loans	1,585,079	1,439,645	1,275,080	1,322,139	1,466,120
Total Loans	81,835,734	87,873,449	95,563,493	100,059,119	102,538,550
Interest Expense	3,139,893	3,053,529	3,381,630	3,673,773	3,271,875
Net interest income	2,469,350	2,613,646	2,688,409	2,596,343	2,801,014
Short-term assets	16,719,258	13,629,775	4,972,372	5,657,847	10,199,194
WACC	11.45%	11.63%	9.89%	11.37%	10.79%
Capital Invested	6,014,340	5,127,820	5,104,616	5,306,367	5,386,023
Financial Ratios					
ROA	1.00%	1.07%	1.11%	0.99%	1.06%
ROE	12.79%	12.90%	13.23%	9.21%	9.46%
EVA	6.14	6.18	6.23	6.16	6.27
Capital adequacy	8.38%	9.33%	8.93%	9.69%	10.06%
Asset quality	1.94%	1.64%	1.33%	1.32%	1.43%
Management	3.84%	3.47%	3.54%	3.67%	3.19%
Earning	1.70%	1.76%	1.67%	1.60%	1.70%
Liquidity	11.49%	9.16%	3.09%	3.49%	6.19%

Appendix 6

Malayan Banking Berhad

Financial Items	**2013 (RM'000)**	**2014 (RM'000)**	**2015 (RM'000)**	**2016 (RM'000)**	**2017 (RM'000)**
Net profit	6,771,333	6,911,043	5,834,287	6,422,644	6,122,875
Total Assets	397,605,477	452,559,458	492,390,953	496,062,610	509,666,821
Total Equity	40,499,772	46,172,805	51,618,383	57,004,632	62,252,548
Net operating profit after tax	8,730,327	8,948,458	6,984,535	7,347,267	7,352,614
Total capital	42,675,937	50,492,224	57,982,530	63,406,680	62,753,300
Non-performing Loans	2,741,528	2,650,307	4,381,996	5,597,011	3,875,729
Total Loans	237,971,279	264,524,441	287,056,974	295,020,136	290,997,969
Interest Expense	6,721,191	8,147,985	6,423,163	6,923,742	7,306,999
Net interest income	9,585,280	9,703,703	8,328,372	8,152,611	8,792,946
Short-term assets	29,320,984	34,778,324	41,278,089	38,350,931	30,714,527
WACC	9.90%	8.50%	9.30%	9.35%	9.25%
Capital Invested	28,112,964	28,790,420	35,604,357	41,309,877	51,064,815
Financial Ratios					
ROA	1.70%	1.53%	1.18%	1.29%	1.20%
ROE	16.72%	14.97%	11.30%	11.27%	9.84%
EVA	6.77	6.81	6.57	6.54	6.42
Capital adequacy	10.73%	11.16%	11.78%	12.78%	12.31%
Asset quality	1.15%	1.00%	1.53%	1.90%	1.33%
Management	2.82%	3.08%	2.24%	2.35%	2.51%
Earning	2.41%	2.14%	1.69%	1.64%	1.73%
Liquidity	7.37%	7.68%	8.38%	7.73%	6.03%

Appendix 7

Public Bank Berhad

Financial Items	**2013 (RM'000)**	**2014 (RM'000)**	**2015 (RM'000)**	**2016 (RM'000)**	**2017 (RM'000)**
Net profit	3,705,115	4,029,602	3,988,629	4,023,905	5,060,539
Total Assets	252,839,439	286,667,566	292,272,391	303,809,743	313,664,765
Total Equity	18,822,055	25,943,161	27,945,187	29,773,502	32,641,180
Net operating profit after tax	4,747,072	5,118,353	4,986,445	5,105,268	6,365,582
Total capital	23,586,399	29,767,524	30,949,599	31,004,076	32,444,901
Non-performing Loans	2,125,565	1,965,840	1,968,543	2,026,986	2,125,721
Total Loans	182,404,573	201,928,027	219,872,074	232,794,693	240,576,248
Interest Expense	5,568,826	6,450,314	7,571,270	7,903,957	7,569,308
Net interest income	4,799,594	5,152,158	5,393,720	5,633,609	5,997,105
Short-term assets	12,750,086	11,008,446	9,098,632	5,059,890	6,387,571
WACC	9.80%	9.50%	9.30%	9.30%	9.30%
Capital Invested	5,391,124	5,310,503	5,499,668	6,401,522	6,702,646
Financial Ratios					
ROA	1.47%	1.41%	1.36%	1.32%	1.61%
ROE	19.68%	15.53%	14.27%	13.52%	15.50%
EVA	6.63	6.66	6.65	6.65	6.76
Capital adequacy	9.33%	10.38%	10.59%	10.21%	10.34%
Asset quality	1.17%	0.97%	0.90%	0.87%	0.88%
Management	3.05%	3.19%	3.44%	3.40%	3.15%
Earning	1.90%	1.80%	1.85%	1.85%	1.91%
Liquidity	5.04%	3.84%	3.11%	1.67%	2.04%

Appendix 8

RHB Bank Berhad

Financial Items	**2013 (RM'000)**	**2014 (RM'000)**	**2015 (RM'000)**	**2016 (RM'000)**	**2017 (RM'000)**
Net profit	1,843,538	2,063,464	1,668,552	1,687,588	1,956,040
Total Assets	191,089,907	219,354,436	227,938,347	236,678,829	230,209,926
Total Equity	16,942,727	18,894,086	17,692,487	21,773,867	23,184,428
Net operating profit after tax	2,898,602	2,823,711	2,544,987	3,094,506	3,200,194
Total capital	13,881,061	15,915,021	19,366,809	22,550,247	21,835,377
Non-performing Loans	4,122,777	3,704,991	4,070,140	4,661,442	4,121,726
Total Loans	119,542,545	140,693,003	149,579,973	152,350,304	158,301,463
Interest Expense	3,626,432	4,178,367	4,602,007	4,378,846	4,184,023
Net interest income	3,274,486	3,291,332	3,407,596	3,453,469	3,521,807
Short-term assets	9,998,667	16,236,908	12,881,395	14,682,943	9,951,878
WACC	7.80%	8.10%	9.50%	10.90%	8.50%
Capital Invested	2,952,433	3,193,806	3,414,447	3,715,645	3,463,171
Financial Ratios					
ROA	0.96%	0.94%	0.73%	0.71%	0.85%
ROE	10.88%	10.92%	9.43%	7.75%	8.44%
EVA	6.43	6.41	6.35	6.43	6.46
Capital adequacy	7.26%	7.26%	8.50%	9.53%	9.48%
Asset quality	3.45%	2.63%	2.72%	3.06%	2.60%
Management	3.03%	2.97%	3.08%	2.87%	2.64%
Earning	1.71%	1.50%	1.49%	1.46%	1.53%
Liquidity	5.23%	7.40%	5.65%	6.20%	4.32%

Appendix 9

United Overseas Bank (Malaysia) Berhad

Financial Items	**2013 (RM'000)**	**2014 (RM'000)**	**2015 (RM'000)**	**2016 (RM'000)**	**2017 (RM'000)**
Net profit	991,986	1,294,284	1,067,546	1,102,331	1,153,777
Total Assets	89,798,386	94,026,228	95,292,063	100,415,676	101,849,923
Total Equity	6,064,164	7,074,757	7,687,380	8,409,801	9,221,716
Net operating profit after tax	1,543,690	1,919,576	1,639,477	1,717,687	1,818,031
Total capital	6,895,493	8,094,744	9,285,974	10,085,866	10,717,390
Non-performing Loans	775,570	707,098	854,466	872,015	907,062
Total Loans	61,479,326	67,115,580	71,058,275	76,630,127	77,675,030
Interest Expense	2,068,812	2,238,640	2,423,958	2,617,582	2,703,878
Net interest income	1,570,928	1,811,788	1,907,216	1,928,296	2,029,422
Short-term assets	15,104,134	10,833,347	7,735,351	11,805,740	8,438,916
WACC	7.41%	7.37%	7.33%	10.50%	7.33%
Capital Invested	351,615	156,558	99,030	123,663	303,204
Financial Ratios					
ROA	1.10%	1.38%	1.12%	1.10%	1.13%
ROE	16.36%	18.29%	13.89%	13.11%	12.51%
EVA	6.18	6.28	6.21	6.23	6.25
Capital adequacy	7.68%	8.61%	9.74%	10.04%	10.52%
Asset quality	1.26%	1.05%	1.20%	1.14%	1.17%
Management	3.37%	3.34%	3.41%	3.42%	3.48%
Earning	1.75%	1.93%	2.00%	1.92%	1.99%
Liquidity	16.82%	11.52%	8.12%	11.76%	8.29%

Appendix 10

OCBC Bank (Malaysia) Berhad

Financial Items	**2013 (RM'000)**	**2014 (RM'000)**	**2015 (RM'000)**	**2016 (RM'000)**	**2017 (RM'000)**
Net profit	838,277	763,307	745,308	655,272	757,233
Total Assets	74,392,728	80,469,171	82,047,448	81,981,799	79,469,599
Total Equity	5,431,766	5,710,211	5,627,657	5,834,068	6,084,020
Net operating profit after tax	1,117,333	1,120,413	1,162,081	1,014,513	1,118,135
Total capital	6,084,908	6,223,164	7,085,163	6,906,721	6,918,975
Non-performing Loans	987,346	769,186	840,253	891,489	736,614
Total Loans	48,935,917	53,470,126	58,580,383	57,799,889	57,742,824
Interest Expense	1,604,653	1,929,332	2,218,906	2,201,908	2,153,682
Net interest income	1,313,774	1,412,193	1,390,582	1,335,672	1,426,296
Short-term assets	9,102,977	7,780,124	4,862,227	7,449,587	6,437,013
WACC	10.10%	10.40%	11.30%	10.80%	8.30%
Capital Invested	847,377	907,544	993,301	1,216,057	1,242,452
Financial Ratios					
ROA	1.13%	0.95%	0.91%	0.80%	0.95%
ROE	15.43%	13.37%	13.24%	11.23%	12.45%
EVA	6.01	6.01	6.02	5.95	6.01
Capital adequacy	8.18%	7.73%	8.64%	8.42%	8.71%
Asset quality	2.02%	1.44%	1.43%	1.54%	1.28%
Management	3.28%	3.61%	3.79%	3.81%	3.73%
Earning	1.77%	1.75%	1.69%	1.63%	1.79%
Liquidity	12.24%	9.67%	5.93%	9.09%	8.10%

Appendix 11

Standard Chartered Bank (Malaysia) Berhad

Financial Items	**2013 (RM'000)**	**2014 (RM'000)**	**2015 (RM'000)**	**2016 (RM'000)**	**2017 (RM'000)**
Net profit	491,576	377,220	8,673	296,507	336,450
Total Assets	50,682,105	51,152,615	47,132,166	44,243,896	41,588,968
Total Equity	3,778,829	4,048,705	4,039,939	4,328,605	4,551,177
Net operating profit after tax	912,537	810,574	686,778	709,924	575,936
Total capital	3,975,069	4,253,390	4,322,222	4,577,245	4,735,571
Non-performing Loans	1,250,426	701,082	984,838	807,245	774,318
Total Loans	29,163,612	26,706,380	22,886,385	22,427,136	22,102,389
Interest Expense	780,454	760,427	745,811	642,318	632,308
Net interest income	1,112,219	1,093,996	1,052,966	955,737	974,344
Short-term assets	6,794,448	6,013,052	5,907,593	5,345,827	4,843,476
WACC	11.20%	11.70%	11.90%	10.10%	11.80%
Capital Invested	564,050	569,441	553,857	561,363	587,354
Financial Ratios					
ROA	0.97%	0.74%	0.02%	0.67%	0.81%
ROE	13.01%	9.32%	0.21%	6.85%	7.39%
EVA	5.93	5.87	5.79	5.82	5.70
Capital adequacy	7.84%	8.32%	9.17%	10.35%	11.39%
Asset quality	4.29%	2.63%	4.30%	3.60%	3.50%
Management	2.68%	2.85%	3.26%	2.86%	2.86%
Earning	2.19%	2.14%	2.23%	2.16%	2.34%
Liquidity	13.41%	11.76%	12.53%	12.08%	11.65%

Appendix 12

Bangkok Bank Berhad

Financial Items	**2013 (RM'000)**	**2014 (RM'000)**	**2015 (RM'000)**	**2016 (RM'000)**	**2017 (RM'000)**
Net profit	15,642	6,582	13,938	31,196	20,556
Total Assets	3,552,393	4,961,142	4,303,371	4,238,235	4,677,061
Total Equity	572,314	765,877	782,940	812,002	1,235,642
Net operating profit after tax	36,076	43,836	59,463	36,713	25,464
Total capital	597,898	799,442	820,989	853,710	1,227,836
Non-performing Loans	2,112	102,751	46,709	37,782	2,586
Total Loans	2,493,493	2,781,245	2,693,380	2,725,493	2,793,570
Interest Expense	81,573	96,861	117,249	104,467	83,384
Net interest income	57,131	68,206	86,899	75,173	61,182
Short-term assets	295,502	697,994	135,893	283,434	672,547
WACC	12.80%	8.00%	8.70%	8.10%	6.85%
Capital Invested	16,515	14,500	6,019	3,733	2,062
Financial Ratios					
ROA	0.44%	0.13%	0.32%	0.74%	0.44%
ROE	2.73%	0.86%	1.78%	3.84%	1.66%
EVA	4.53	4.63	4.77	4.56	4.40
Capital adequacy	16.83%	16.11%	19.08%	20.14%	26.25%
Asset quality	0.08%	3.69%	1.73%	1.39%	0.09%
Management	3.27%	3.48%	4.35%	3.83%	2.98%
Earning	1.61%	1.37%	2.02%	1.77%	1.31%
Liquidity	8.32%	14.07%	3.16%	6.69%	14.38%

Appendix 13

Bank of China Berhad

Financial Items	**2013 (RM'000)**	**2014 (RM'000)**	**2015 (RM'000)**	**2016 (RM'000)**	**2017 (RM'000)**
Net profit	51,746	104,087	103,252	113,110	114,762
Total Assets	9,769,855	8,967,954	8,447,335	9,208,091	12,518,520
Total Equity	506,036	1,066,641	1,169,893	1,283,003	1,398,928
Net operating profit after tax	78,081	145,423	149,634	158,016	180,894
Total capital	526,599	1,088,976	1,200,517	1,313,107	2,687,185
Non-performing Loans	14,072	12,341	38,104	75,016	62,247
Total Loans	2,796,973	5,052,027	4,722,114	5,183,247	5,881,389
Interest Expense	157,323	261,324	219,729	193,422	227,926
Net interest income	98,965	167,581	153,351	170,137	203,822
Short-term assets	4,461,023	3,605,813	1,948,595	3,133,474	3,077,307
WACC	8.08%	8.14%	7.97%	7.22%	7.34%
Capital Invested	4,503	4,627	26,454	32,501	37,515
Financial Ratios					
ROA	0.53%	1.16%	1.22%	1.23%	0.92%
ROE	10.23%	9.76%	8.83%	8.82%	8.20%
EVA	4.89	5.16	5.17	5.19	5.25
Capital adequacy	5.39%	12.14%	14.21%	14.26%	21.47%
Asset quality	0.50%	0.24%	0.81%	1.45%	1.06%
Management	5.62%	5.17%	4.65%	3.73%	3.88%
Earning	1.01%	1.87%	1.82%	1.85%	1.63%
Liquidity	45.66%	40.21%	23.07%	34.03%	24.58%

Appendix 14

Deutsche Bank Berhad

Financial Items	**2013 (RM'000)**	**2014 (RM'000)**	**2015 (RM'000)**	**2016 (RM'000)**	**2017 (RM'000)**
Net profit	117,067	141,374	112,349	147,039	152,426
Total Assets	12,471,027	10,375,410	13,609,402	11,888,390	11,158,185
Total Equity	1,571,734	1,713,108	1,708,390	1,755,429	1,760,816
Net operating profit after tax	155,988	187,756	153,353	200,997	199,569
Total capital	1,557,069	1,580,125	1,689,307	1,731,019	1,581,896
Non-performing Loans	2,082	372	517	638	442
Total Loans	2,004,478	1,331,664	1,332,466	1,890,528	1,938,440
Interest Expense	90,949	85,748	74,461	71,784	57,896
Net interest income	146,864	122,096	114,582	132,567	127,732
Short-term assets	2,496,327	5,145,807	5,856,232	4,608,452	4,909,683
WACC	9.10%	9.30%	9.30%	9.15%	9.60%
Capital Invested	22,644	22,330	26,543	35,761	35,761
Financial Ratios					
ROA	0.94%	1.36%	0.83%	1.24%	1.37%
ROE	7.45%	8.25%	6.58%	8.38%	8.66%
EVA	5.19	5.27	5.18	5.30	5.29
Capital adequacy	12.49%	15.23%	12.41%	14.56%	14.18%
Asset quality	0.10%	0.03%	0.04%	0.03%	0.02%
Management	4.54%	6.44%	5.59%	3.80%	2.99%
Earning	1.18%	1.18%	0.84%	1.12%	1.14%
Liquidity	20.02%	49.60%	43.03%	38.76%	44.00%

Appendix 15

Citibank (Malaysia) Berhad

Financial Items	**2013 (RM'000)**	**2014 (RM'000)**	**2015 (RM'000)**	**2016 (RM'000)**	**2017 (RM'000)**
Net profit	532,887	524,025	569,425	612,461	579,750
Total Assets	38,372,211	37,634,078	38,963,200	43,529,161	40,794,939
Total Equity	4,327,584	4,342,022	4,527,675	4,619,548	4,682,897
Net operating profit after tax	850,154	536,444	857,405	1,005,874	790,265
Total capital	4,542,195	4,620,357	4,743,600	4,909,581	4,342,361
Non-performing Loans	657,235	601,225	671,027	703,944	550,627
Total Loans	20,498,282	21,641,546	23,932,917	24,285,097	23,769,927
Interest Expense	448,500	427,722	426,212	414,763	339,574
Net interest income	1,092,262	1,165,879	1,096,432	1,148,341	941,485
Short-term assets	10,847,328	7,194,861	9,883,167	11,425,761	8,738,464
WACC	8.80%	8.90%	9.20%	8.70%	8.60%
Capital Invested	29,333	23,480	47,767	53,870	76,778
Financial Ratios					
ROA	1.39%	1.39%	1.46%	1.41%	1.42%
ROE	12.31%	12.07%	12.58%	13.26%	12.38%
EVA	5.93	5.73	5.93	6.00	5.89
Capital adequacy	11.84%	12.28%	12.17%	11.28%	10.64%
Asset quality	3.21%	2.78%	2.80%	2.90%	2.32%
Management	2.19%	1.98%	1.78%	1.71%	1.43%
Earning	2.85%	3.10%	2.81%	2.64%	2.31%
Liquidity	28.27%	19.12%	25.37%	26.25%	21.42%

Appendix 16

HSBC Bank Malaysia Berhad

Financial Items	**2013 (RM'000)**	**2014 (RM'000)**	**2015 (RM'000)**	**2016 (RM'000)**	**2017 (RM'000)**
Net profit	975,227	964,091	981,453	916,856	995,641
Total Assets	67,820,715	70,324,553	75,307,681	72,934,712	66,927,824
Total Equity	5,921,751	6,348,345	7,056,615	7,868,213	8,149,167
Net operating profit after tax	2,603,590	2,566,777	2,806,415	2,643,651	2,567,558
Total capital	6,142,261	6,455,274	7,039,580	7,671,898	7,609,592
Non-performing Loans	793,055	776,210	861,773	754,657	740,432
Total Loans	35,484,730	34,753,154	39,253,976	35,151,571	36,428,907
Interest Expense	882,635	905,086	987,008	860,168	817,744
Net interest income	1,439,647	1,561,196	1,582,977	1,529,470	1,573,984
Short-term assets	12,558,786	8,077,960	14,318,083	14,999,888	14,482,071
WACC	12.75%	12.80%	13.00%	13.00%	11.85%
Capital Invested	930,184	1,381,010	1,864,906	1,952,004	1,955,821
Financial Ratios					
ROA	1.44%	1.37%	1.30%	1.26%	1.49%
ROE	16.47%	15.19%	13.91%	11.65%	12.22%
EVA	6.40	6.38	6.41	6.38	6.37
Capital adequacy	9.06%	9.18%	9.35%	10.52%	11.37%
Asset quality	2.23%	2.23%	2.20%	2.15%	2.03%
Management	2.49%	2.60%	2.51%	2.45%	2.24%
Earning	2.12%	2.22%	2.10%	2.10%	2.35%
Liquidity	18.52%	11.49%	19.01%	20.57%	21.64%

Appendix 17

Eview Descriptive Analysis Output

Date: 07/08/18 Time: 18:01
Sample: 2013 2017

Mean	1.068500	10.82475	5.964750	10.93987	1.627875	3.276250	1.797375	12.80900
Median	1.085000	11.25000	6.080000	10.34500	1.430000	3.080000	1.750000	8.350000
Maximum	1.700000	19.68000	6.810000	26.25000	4.300000	6.440000	3.100000	45.66000
Minimum	0.130000	0.860000	4.400000	5.390000	0.020000	1.430000	0.840000	1.670000
Std. Dev.	0.310594	3.701581	0.573093	3.307208	1.014101	0.908774	0.398233	10.93275
Skewness	-0.517479	-0.483332	-0.916398	2.113080	0.601946	1.018087	0.577321	1.668744
Kurtosis	3.173982	3.457018	3.205602	8.999079	2.980632	4.441366	4.365934	5.053888
Jarque-Bera	3.671358	3.811013	11.33804	179.4979	4.832440	20.74514	10.66326	51.19096
Probability	0.159505	0.148747	0.003451	0.000000	0.089258	0.000031	0.004836	0.000000
Sum	85.48000	865.9800	477.1800	875.1900	130.2300	262.1000	143.7900	1024.720
Sum Sq. Dev.	7.621020	1082.434	25.94640	864.0725	81.24374	65.24368	12.52855	9442.469
Observations	80	80	80	80	80	80	80	80

Appendix 18

Eview Correlation Analysis Output for Model 1: ROA

	ROA	CA	AQ	MGMT	EA	LI
ROA	1.000000	-0.207501	-0.221503	-0.369076	0.390014	0.136154
CA	-0.207501	1.000000	-0.255194	0.137734	-0.127819	0.244301
AQ	-0.221503	-0.255194	1.000000	-0.368010	0.521322	-0.214663
MGMT	-0.369076	0.137734	-0.368010	1.000000	-0.503785	0.318291
EA	0.390014	-0.127819	0.521322	-0.503785	1.000000	-0.093990
LI	0.136154	0.244301	-0.214663	0.318291	-0.093990	1.000000

Appendix 19

Eview Correlation Analysis Output for Model 2: ROE

	ROE	CA	AQ	MGMT	EA	LI
ROE	1.000000	-0.589230	-0.080481	-0.342016	0.360784	-0.119474
CA	-0.589230	1.000000	-0.255194	0.137734	-0.127819	0.244301
AQ	-0.080481	-0.255194	1.000000	-0.368010	0.521322	-0.214663
MGMT	-0.342016	0.137734	-0.368010	1.000000	-0.503785	0.318291
EA	0.360784	-0.127819	0.521322	-0.503785	1.000000	-0.093990
LI	0.119474	0.244301	-0.214663	0.318291	-0.093990	1.000000

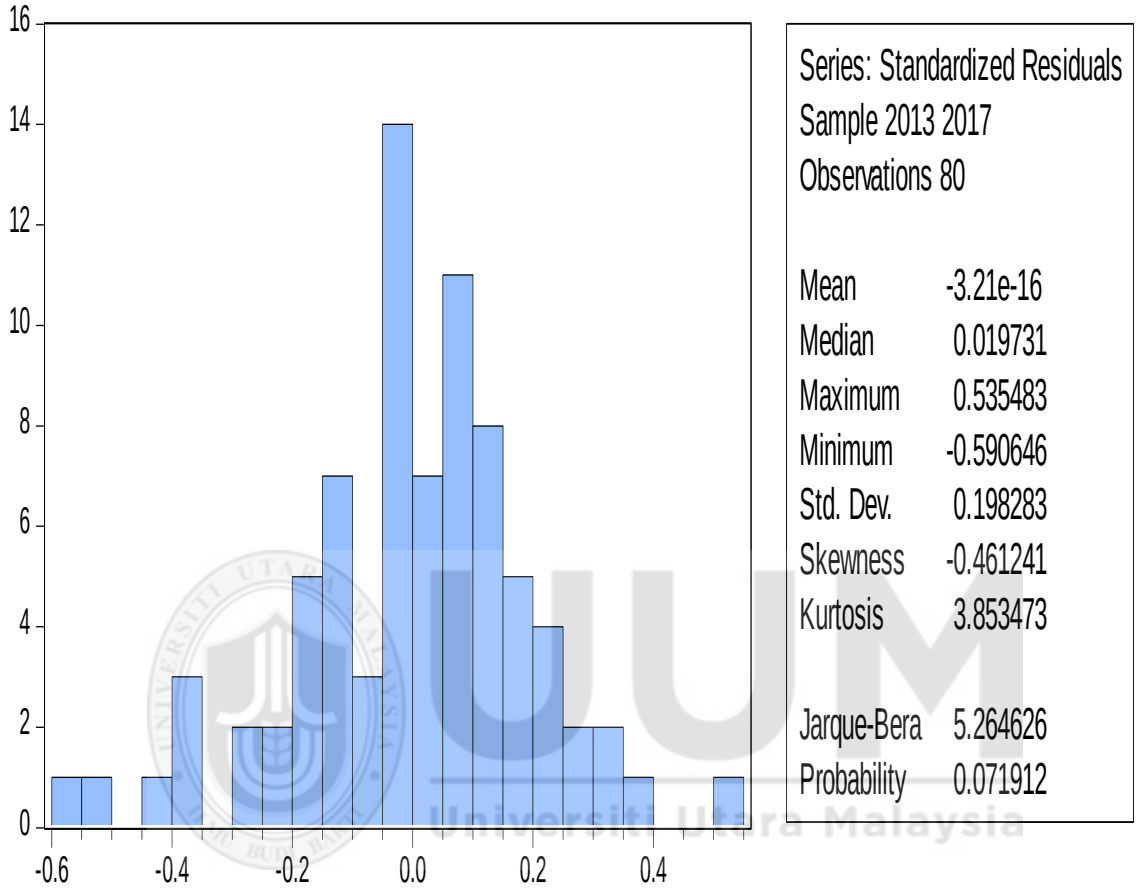
Appendix 20

Eview Correlation Analysis Output for Model 3: EVA

	EVA	CA	AQ	MGMT	EA	LI
EVA	1.000000	-0.639095	0.098844	-0.486412	0.278668	-0.476592
CA	-0.639095	1.000000	-0.255194	0.137734	-0.127819	0.244301
AQ	-0.098844	-0.255194	1.000000	-0.368010	0.521322	-0.214663
MGMT	-0.486412	0.137734	-0.368010	1.000000	-0.503785	0.318291
EA	0.278668	-0.127819	0.521322	-0.503785	1.000000	-0.093990
LI	-0.476592	0.244301	-0.214663	0.318291	-0.093990	1.000000

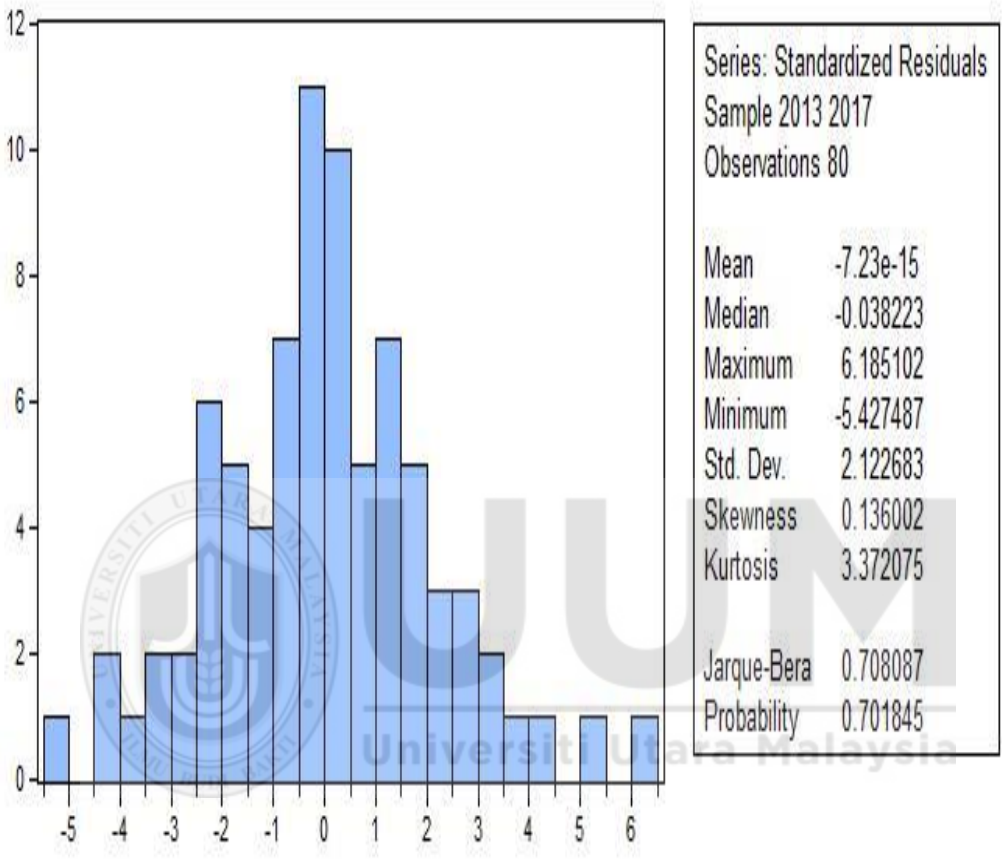
Appendix 21

Eview Normality Test Output for Model 1: ROA



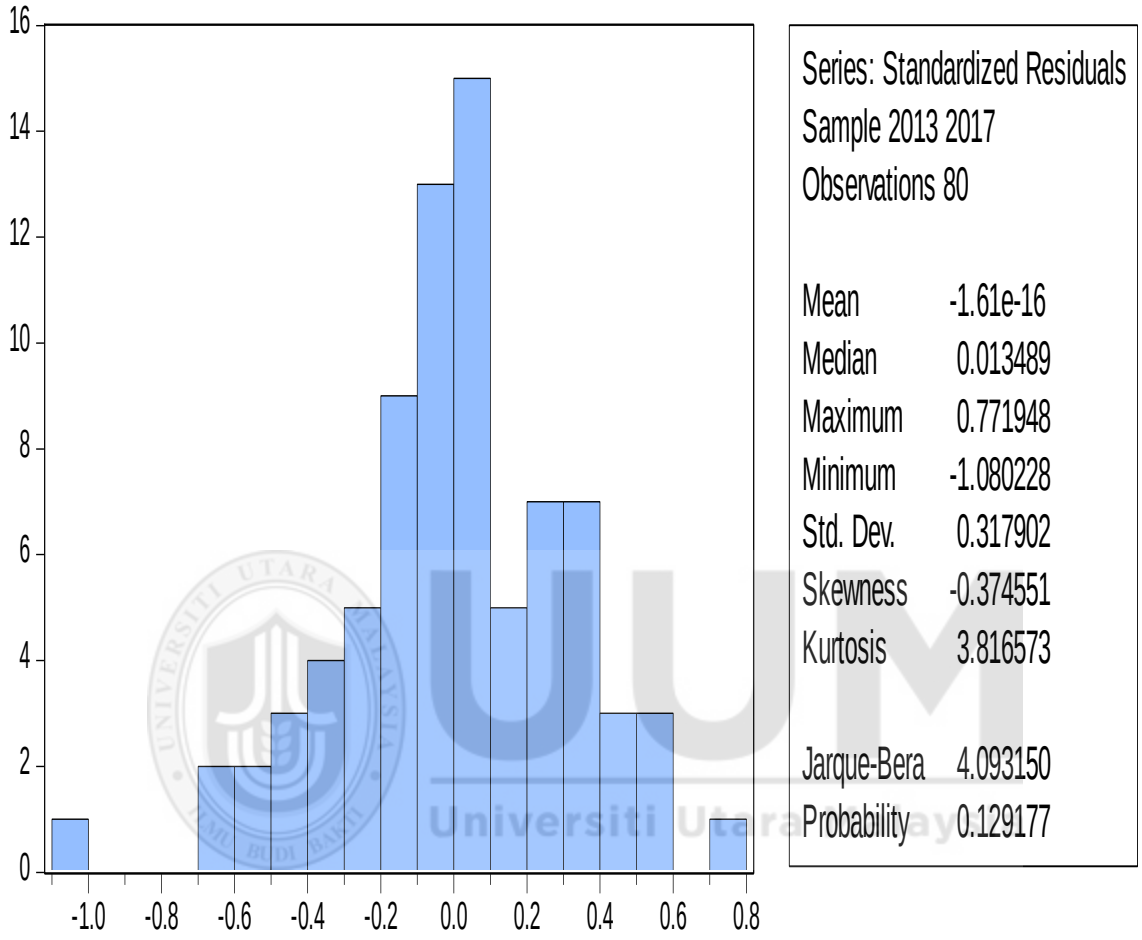
Appendix 22

Eview Normality Test Output for Model 2: ROE



Appendix 23

Eview Normality Test Output for Model 3: EVA



Appendix 24

Eview Panel Regression Analysis Output for Model 1: ROA

Dependent Variable: ROA
Method: Panel Least Squares
Date: 06/10/18 Time: 22:28
Sample: 2013 2017
Periods included: 5
Cross-sections included: 16
Total panel (balanced) observations: 80

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.326635	0.207616	6.389853	0.0000
CA	-0.029719	0.007358	-4.039016	0.0001
AQ	-0.203857	0.027741	-7.348534	0.0000
MGMT	-0.130535	0.031057	-4.203084	0.0001
EA	0.410914	0.074510	5.514852	0.0000
LI	0.006866	0.002304	2.980336	0.0039

R-squared	0.592447	Mean dependent var	1.068500
Adjusted R-squared	0.564910	S.D. dependent var	0.310594
S.E. of regression	0.204872	Akaike info criterion	-0.260823
Sum squared resid	3.105971	Schwarz criterion	-0.082171
Log likelihood	16.43293	Hannan-Quinn criter.	-0.189197
F-statistic	21.51428	Durbin-Watson stat	1.295544
Prob(F-statistic)	0.000000		

Appendix 25

Eview Panel Regression Analysis Output for Model 2: ROE

Dependent Variable: ROE
Method: Panel Least Squares
Date: 06/10/18 Time: 22:34
Sample: 2013 2017
Periods included: 5
Cross-sections included: 16
Total panel (balanced) observations: 80

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	17.69178	2.222596	7.959965	0.0000
CA	-0.728839	0.078770	-9.252728	0.0000
AQ	-2.058472	0.296979	-6.931381	0.0000
MGMT	-0.995943	0.332475	-2.995540	0.0037
EA	4.201526	0.797659	5.267323	0.0000
LI	0.013158	0.024661	0.533561	0.5952

R-squared	0.671152	Mean dependent var	10.82475
Adjusted R-squared	0.648932	S.D. dependent var	3.701581
S.E. of regression	2.193223	Akaike info criterion	4.480660
Sum squared resid	355.9567	Schwarz criterion	4.659312
Log likelihood	-173.2264	Hannan-Quinn criter.	4.552286
F-statistic	30.20554	Durbin-Watson stat	0.987892
Prob(F-statistic)	0.000000		

Appendix 26

Eview Panel Regression Analysis Output for Model 3: EVA

Dependent Variable: EVA
Method: Panel Least Squares
Date: 06/10/18 Time: 22:39
Sample: 2013 2017
Periods included: 5
Cross-sections included: 16
Total panel (balanced) observations: 80

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.845589	0.332865	23.56985	0.0000
CA	-0.101396	0.011797	-8.595071	0.0000
AQ	-0.185951	0.044477	-4.180865	0.0001
MGMT	-0.222283	0.049793	-4.464152	0.0000
EA	0.247388	0.119461	2.070868	0.0419
LI	-0.014464	0.003693	-3.916196	0.0002

R-squared	0.692293	Mean dependent var	5.964750
Adjusted R-squared	0.671502	S.D. dependent var	0.573093
S.E. of regression	0.328466	Akaike info criterion	0.683274
Sum squared resid	7.983875	Schwarz criterion	0.861926
Log likelihood	-21.33097	Hannan-Quinn criter.	0.754901
F-statistic	33.29778	Durbin-Watson stat	0.731348
Prob(F-statistic)	0.000000		